JULY, MDCCCLX.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXVIII.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

The Name, Paging, &c., of the 'Zoologist.'

From the Rev. Hamlet Clark, M.A.

With reference to the pagination of the 'Zoologist' I may remind you of an excellent precedent for a continuous paging; 'Stephani Thesaurus' is paged, or rather columned, throughout eight large folio volumes, the last column being 11184: the value of this arrangement appears in the index to the whole. I am sure that if by any combination of coadjutors you could obtain an index for the 'Zoologist' you would increase its value tenfold: the index should be *systematic* rather than alphabetical (unless *both* could be attained). It is *much easier* certainly to appreciate the value of such an arrangement than to carry it out; the double difficulty of obtaining careful and accurate compilers and of defraying the necessary expense is self-evident; but, with regard to the former, I cannot but believe that if you, as the Editor, were to select from among the large body of your subscribers, and to request the assistance of those who were able to deal with their own especial departments, you would find sufficient support.

Touching the question of introducing botanical matter into your pages, I like the name of 'Zoologist' for its comprehensiveness and *also for its exclusiveness*. Your occasional double numbers prove that you have no lack of contributors; and hence I see no advantage, but, on the other hand, a possible disadvantage in changing to any extent, its present limits. 'The Zoologist' is at present doing its work well, and it is a good motto, "Let well alone."—12, *Orchard Street, Portman Square, W., May* 7, 1860.

From the Rev. A. C. Smith, M.A.

Pray do not alter the name, paging or anything else of the 'Zoologist,' nor trench upon our allotted space by the insertion of matter which is the genuine property of the 'Phytologist,' but wholly irrelevant to our subject. I submit that, as a collection of numerous facts in Zoology, the back volumes from 1843 to the present time are essentially useful for reference, and the method hitherto adopted is as convenient as it is simple; whereas the adoption of a new name, new paging, or new series (all equally objectionable, in my opinion), would only serve to complicate matters and perplex your readers. Consider for a moment what such an alteration would involve in the reference (so frequent amongst us) to back numbers, and compare our present simple style, "Zool. 8549" with "Zool. 2nd series, vol. iii. p. 276," and surely the brevity and simplicity of the present method must commend itself in preference to any innovation.

It has been suggested by some of your correspondents not to alter the paging a any rate till you reach five figures: I would plead earnestly that the same indulgenc be extended through one figure more; after which you have my full consent to act a you please, for you will have reached the end of Vol. 250 and the close of A. D. 2093 when possibly an alteration may be expedient.—*Yatesbury Rectory, Calne, June* 2 1860.

To Correspondents.

Captain Hadfield.—I am sorry not to be able to name the large moth from th description; but all the larger moths are figured in the successive numbers o 'Young England' with unmistakeable exactness: I am greatly obliged for the offe of the specimen, but do not wish for it.

A. Preston, of Blackburn.—The egg is white, with the slightest possible shad of blue.

A Revision of the Synonymy of the British Species of the Genus Bombus of Latreille.

By **Frederick Smith**, Esq., Zoological Department of the British Museum.

In the second volume of the 'Zoologist' I published my first revision of the genus Bombus; in the fourth I described, as a new species, the B. subterraneus, and on turning back to the remarks which I at that time added it will be seen that I was conscious of the difficulties which attended a discrimination of the species, and expressed a conviction that hereafter it would be found that I had committed many errors.

In 1855 my monograph on the Bees of Great Britain was published, and the synonymy again underwent a revision; many corrections were undoubtedly made, but several errors were again endorsed.

It may at first sight appear somewhat remarkable that a third revision should be found necessary, but this idea will not occur to those who have studied the Apidæ. I by no means flatter myself that the revision which I now put forth is perfect, but I think it will prove to be a close approach to so desirable an end. It is doubtless a work of considerable labour to work out the species of even a small group of insects so as to bring the nomenclature into satisfactory accordance with that employed by continental authors, and when this desirable end is accomplished how frequently does a single lesson of out-door Entomology upset some of our apparently most felicitous conclusions!

Were I to delay the publication of the nomenclature until I have satisfied myself of its being so perfect that nothing, apparently, could subsequently disturb any portion of my fancied work of perfection, it is probable that this paper would never see the light; but having amassed probably the largest amount of material that has ever been brought together for the purpose of investigation, and having with much care and to the best of my ability thoroughly gone over it, I deem it best to place the results in an available position.

In order that I might come to my task prepared with the best possible materials for the purpose, I entered into correspondence with Hymenopterists in Denmark, Sweden, France and Germany, and having supplied them with examples of the British species, and also received from them the species of their respective localities, I have been in a position to rectify many errors which, without possessing specimens, I could never have accomplished. The short general descriptions of both Linneus and Fabricius are not sufficient for such

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a purpose; and as they seldom give any clew to the size of their insects, this circumstance alone, in many instances, renders discrimination impossible.

It is a well-known fact that humble bees, being all densely clothed with hair, are subject to extremes of variation, through bleaching by exposure to the sun, &c. This, however, is not the only difficulty: two of our most abundant species of brown bees, B. Muscorum and B. senilis are frequently so closely alike that none but a practised eye can detect their differences, and yet the former of these runs into innumerable varieties, so much so as to induce Kirby to create eight species out of them; the latter, B. senilis, only differs in being more or less pale. On the other hand some species seldom, if ever, vary; in B. Hortorum, for instance, a species found in all parts of Europe, specimens of which I have seen from Lapland, Finland, Denmark and the South of France, I cannot detect any sensible difference; others, from the regions of Arctic America, exactly correspond with examples taken in the vicinity of the metropolis.

Fabricius has described, in the 'Systema Piezatorum,' thirty-three species of European Bombi, only nineteen of which are, in my opinion, entitled to that rank; the remaining fourteen being either varieties, males or workers of the former. Many of these it would be impossible to assign to the species to which they really belong without an examination of the typical specimens of the insects described; fortunately this has been accomplished, in several instances, by Dr. Nylander and M. Drewsen, of Copenhagen. To both these eminent Hymenopterists I am greatly indebted for information, which has, in a considerable degree, reduced the difficulties which stood in my way.

Having found an examination and comparison of the male generative organs an unfailing guide in the determination of the species in the family Vespidæ, I determined to test its value in the discrimination of the species of the genus Bombus, and the results have proved most satisfactory; in general, the differences of form are most marked and decisive, and it is only in one or two cases that the differences are slight; but even then I consider them satisfactory: the species between which I have found the slightest differences are B. terrestris and B. Lucorum. There is not a single species which has not undergone such an examination; and in order to test the constancy of form in the male organs I have, in the cases of B. Muscorum, B. lapidarius and B. Hortorum, examined from thirty to forty of each species, and can therefore confidently attest the value of such investigations and comparisons. The results contained in this paper cannot, I am aware, prove interesting to the readers of the 'Zoologist' generally; but whenever the time may arrive in which the Aculeate Hymenoptera receive their due share of entomological research, my labours on the genus Bombus will be found, I trust, to have been not altogether prosecuted in vain.

Since the commencement of this paper my esteemed correspondent, Mr. Charles Drewsen, has forwarded me his collection of Bombi from Copenhagen; in my communications I had mentioned my intended revision: for this liberal and voluntary assistance, not my thanks alone, but that of every Hymenopterist in the country is due. I am now enabled to speak and to make corrections with a confidence I could not otherwise have assumed.

I have not had occasion to make any alteration in the synonymy of the genus Apathus, that which I gave in the 'Monograph on the Bees of Great Britain' being, as I believe, correct: M. Drewsen thinks there is a fifth species, the male being the A. Francisanus of Kirby, and the female what I consider nothing more than a variety of Apathus campestris: this point will perhaps be more thoroughly investigated by some future Hymenopterists.

1. B. Muscorum, *Fabr. Syst. Piez.* 349, 32. *Dahlb. Bomb. Scand.* 46, 27. *Drews. & Schiödte, Bomb. Kröy. Tidsskr.* ii. 108, 2. *Smith, Bees Great Brit.* 212, 1. *Nyl. Ap. Bor.* 228, 4.
Apis Muscorum, *Linn. Faun. Suec.* No. 1714.
Bombus Mniorum, *Fabr. Syst. Piez.* 350, 40 (var. ☿). *Drews. & Schiödte*, t. 2, f. *a*, *b*.
Bombus senilis, *Fabr. Syst. Piez.* 352, 50, ☿.
Bombus pygmæus, *Fabr. Syst. Piez.* 353, 54, ☿.
Apis floralis, *Kirby, Mon. Ap. Angl.* ii. 321, 76, ♀. Apis Beckwithella, *Kirby*, 323, 78, ♀. Apis Agrorum, *Kirby*, 326, 81, ♀.
Apis Sowerbyana, *Kirby*, 322, 77, ♂. Apis Curtisella, *Kirby*, 324, 79, ♂. (*var*).
Apis Francillonella, *Kirby*, 319, 75, ☿. Apis Forsterella, *Kirby*, 325, 80, ☿.

The B. Mniorum is a remarkable variety, which, I am informed by M. Drewsen, is not uncommon in Denmark: this form is nearly approaching to blackness in all the sexes; in England I have only seen an approach to it in the workers. The B. senilis of Fabricius, I am informed by Dr. Nylander, who has examined the typical specimen in the Museum at Kiel, is a small variety of this species; the synonym, B. pygmæus, is added on the same authority. I have obtained from different continental localities the true B. Agrorum; it is very distinct from the variety A. Agrorum of Kirby, and is a species not yet I believe discovered in this country. That this is the true Apis Muscorum of Linneus is proved by an examination of the typical specimen in the Linnean Cabinet in the Museum of the Linnean Society. I have also obtained specimens from Sweden and Denmark which are identical with the Linnean insect. In M. Drewsen's collection is a fine series of the variety B. Mniorum: every shade of variety exists between our darkest specimens of the female, and one in which the pubescence on the thorax and abdomen above is black, having a few pale hairs intermixed at the base and apex of the abdomen. The other sexes vary in a similar manner; the intermediate varieties strongly resemble examples of B. Sylvarum.

2. B. senilis, *Smith, Zool.* ii. 544, 1 (nec Fabr.); *Bees Great Brit.* 214, 2.
Bombus cognatus, *Steph. Brit. Ent. Supp.* vii. 17, t. 43, f. 3, ♀. (immature).
Apis Muscorum, *Kirby,* ii. 317, 74. *Don. Brit. Ins.* xi. 70, t. 382, f. 2.
Bombus Muscorum, *Westw. Nat. Libr.* xxxviii, 253, t. 16, f. 3, ♀.

This species is readily distinguished from B. Muscorum by the rich fulvous pubescence on the thorax above, and by the almost uniform paler colour of the pubescence on the abdomen; the corbicula are also pale; in B. Muscorum they are black or nearly so. I formerly supposed, relying on the description in the 'Entomologia Systematica,' that the B. senilis was a faded specimen of the worker of this species, but Dr. Nylander informed me that B. senilis is a pale worker of B. Muscorum; I therefore retain the name, having twice described it as B. senilis.

I have stated in my preliminary remarks that this species seldom or never varies; I may here add that in a series of Danish specimens I observed no variation or even the slightest difference to British examples.

3. B. Smithianus, *White, Proc. Linn. Soc.* 1851. *Smith, Mon. Bees. Great Brit.* 215, 3.

Through the kindness of M. Drewsen I have had an opportunity of examining specimens of the B. arcticus of Dahlbom, and I find it a distinct species from B. Smithianus. I may also add that I can detect no difference between it and the B. Agrorum of Europe. This species was discovered by my fellow assistant at the British Museum, Mr. Adam White, in Shetland, in 1851.

4. B. fragrans, *Illig. Mag.* v. 146, 10. *Dahlb. Bomb. Scand.* 46. *St. Farg. Hym.* i. 464. *Drews. & Schiödte, Kröy. Tidsskr.* xi. 171. *Smith, Bees Great Brit.* 216. *Nyl. Ap. Bor.* 229, ♂, ♀, ☿.

Apis fragrans, *Kirby,* ii. 329, 83, ♂.

There is not the slightest difference between British and Danish specimens of this species. It does not appear to vary in colouring.

5. B. Sylvarum, *Illig. Mag.* v. 163, 9. *Fabr. Syst. Piez.* 348. *Dahlb. Bomb. Scand.* 44. *St. Farg.* i. 463. *Drews. & Schiödte,* 109. *Smith, Mon. Bees Great Brit.* 217. *Nyl. Ap. Bor.* 236.

Apis Sylvarum, *Linn. Faun. Suec.* 425, 1713.

The colouring of this species appears to undergo no change in the different localities where it is found; it occurs in France, Germany, Italy, Denmark, Sweden, Finland and Lapland.

6. B. lapponicus, *Fabr. Syst. Piez.* 345. *Dahlb. Bomb. Scand.* 41. *Zett. Ins. Lapp.* 474. *St. Farg. Hym.* i. 459. *Smith, Mon. Bees Great Brit.* 218. *Nyl. Ap. Bor.* 235.

B. Regelationis, *Newm. Ent. Mag.* ii. 327 (nec Panz).

Examples of this species from Lapland, which I have received from Dr. Nylander, are much more highly coloured than British specimens. The abdomen is of an intense fulvous-red, the apex of the abdomen, as well as the scutellum and collar, being bright yellow. Mr. Newman first discovered this species in Wales, on the Black Mountain, Llantony Abbey, Brecknockshire. It has since been taken plentifully in Perthshire, on the Grampians.

7. B. Derhamellus, *Illig. Mag.* v. 169, 29, ♀, ♂. *Dahlb. Bomb. Scand.* 33, 4. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 115, 9. *Smith, Mon. Bees Great Brit.* 219, 7, ♂, ♀. *Nyl. Ap. Bor.* 238, 26.

Apis Derhamellus, *Kirby, Mon. Ap. Angl.* ii. 363, 105, ♂.

Apis Raiellus, *Kirby, Mon. Ap. Angl.* 367, 107, ♀.

The males of this species are subject to great variation in the colouring of the pubescence; it is sometimes black, with the apex of the abdomen red; or black, with somewhat obscure gray pubescence on the thorax in front and behind, as well as at the base of the abdomen, the apex being red. In some examples little remains of the black pubescence except an obscure band between the wings, the abdomen being pale fulvous at the base, and gradually becoming brighter in colour to the red apex; many intermediate shades occur.

8. B. Pratorum, *Illig. Mag.* v. 168, 27, ☿. *Dahlb. Bomb. Scand.* 36, 9. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 111, 7, ♀, ♂, ☿. *Smith, Mon. Bees Great Brit.* 220, 8. *Nyl. Ap. Bor.* 237, 23.
Apis Pratorum, *Linn. Faun. Suec.* 1711. ☿. *Kirby, Mon. Ap. Angl.* ii. 356, 99.
Apis subinterrupta, *Kirby, Mon. Ap. Angl.* ii. 356, 99, ♀.
Apis Burrellana, *Kirby, Mon. Ap. Angl.* 358, 101, ♂.
Bombus subinterruptus, *Illig. Mag.* v. 167, 20, ♀. *Dahlb. Bomb. Scand.* 43, 22. *St. Farg. Hym.* i. 461, 5. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 111, 7.
Bombus Burrellanus, *Dahlb. Bomb. Scand.* 43, 22.
Bombus Ephippium, *Dahlb. Bomb. Scand.* 37, 10, ♀. *Zett. Ins. Lapp.* 437, 6.
Bombus lullianus, *Nyl. Ap. Bor.* 236, 21, ♂.

The typical specimen of the Apis Pratorum of Linneus is in the Linnean Cabinet: the nests of the species being not at all difficult to obtain renders the propriety of uniting the sexes, which have at different times been described as distinct species, a matter of certainty. The Apathus Barbutellus is parasitic on this species; Mr. Walcott and Mr. Grant have both reared that parasite from its nest. The B. Ephippium of Dahlbom is a variety of the female in which the yellow colouring on the scutellum and abdomen is obsolete.

9. B. Cullumanus, *Smith, Zool.* ii. 548, 11, ♂; *Mon. Bees Great Brit.* 227 (var. B. soroensis, ♂).
Apis Cullumanus, *Kirby, Mon. Ap. Angl.* ii. 359, 102, ♂.
Apis Donovanella, *Kirby. Mon. Ap. Angl.* ii. 357, 100, t. 18, f. 6, ♀.
Bombus Donovanella, *Westw. Nat. Libr.* xxxviii. 255, t. 17, f. 1, ♀.

Although both the male and female of this species closely resemble those of B. Pratorum, I know the male to be certainly distinct; a comparison of the organs of generation decides this beyond a doubt. I do not feel equally certain that the A. Donovanella is the true female, but I possess examples of that bee, taken at the same time and place with the male. I am also borne out in this, to some extent, by examples sent to me for examination by Mr. Walcott; of three sent for this purpose, one was taken by Mr. Dale some years ago, a second taken in the New Forest by Mr. Lighton, and a third captured near Bristol; my own specimens are from Southend. I have previously, as well as Dr. Nylander and others, considered the sexes as varieties of B. Pratorum; the male I now know is not, and I have little doubt respecting the distinctness of the female. When Schiödte was in this country he pointed out in my collection the B. Cullumanus as a variety of the male of B. soroensis, and as such I have several times received it from Denmark: a comparison of the organs of generation shows this to be quite erroneous. I do not know the workers of this species, but as the insect is found on the Downs at Brighton and Lewes, and also at Bristol I hope ere long its nests will be found, and the correctness of my present conclusions proved. The female, on placing several at the side of that of B. Pratorum, is seen to be, as Kirby observes, shorter and wider; the black band on the abdomen is also narrower, the yellow pubescence covers the two basal segments; in fact it has a kind of specific identity of colouring with B. Cullumanus. In M. Drewsen's collection, the male stands as a distinct species, the female and worker not being known; it has, however, no name attached.

10. B. nivalis, Apis alpina, *Fabr.* (*Otho*), *Faun. Grœn.* 199, 155 (nec Linn).

Bombus nivalis, *Dahlb. Bomb. Scand.* 40, 16, ♀. *Zett. Ins. Lapp.* 474, 7. *Nyl. Ap. Bor. Revis.* 262, 6. *Smith, Mon. Bees Great Brit.* 222, 9.

Bombus balteatus, *Dahlb. Bomb. Scand.* 36, 8.

Bombus tricolor, *Dahlb. Bomb. Scand.* 40, 17. *Zett. Ins. Lapp.* 474, 9.

Professor Bohemann told me that the female of this species varies in having the apex of the abdomen sometimes fulvous and at other times yellow. All the specimens which I have seen came from Shetland, and have the anus fulvous: I have not seen any specimens from other localities.

11. B. Skrimshiranus, *Illig. Mag.* v. 166, 15. *Dahlb. Bomb. Scand.* 39, 13. *Drews. & Schiödte, Kröy Tidsskr.* ii. 118, 12. *Smith, Zool.* ii. 547; *Mon. Bees Great Brit.* 222, 10. *Nyl. Ap. Bor.* 232, 12.

Apis Skrimshirana, *Kirby, Mon. Ap. Angl.* ii. 342, 92, ♀.

Apis Jonella, *Kirby, Mon. Ap. Angl.* ii. 338, 90, ♂ ?

Bombus Lucorum, *Dahlb. Bomb. Scand.* 42, 20, ♂.

This species is widely distributed, being found in Great Britain, Denmark, Sweden, Finland and Lapland; at Loch Rannoch it is not uncommon. It does not appear to vary much in colouring. It is rare in the vicinity of the metropolis; I once captured a female on the high ground beyond Coombe Wood, Surrey.

12. B. soroensis, *Illig. Mag.* v. 167, 22. *Fabr. Syst. Piez.* 345, 10, ♀. *Dahlb. Bomb. Scand.* 43, 22. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 112, 8, t. 2, f. e ♂, f. ♀. *Nyl. Ap. Bor.* 239, 28.
Apis soroensis, *Fabr. Ent. Syst.* ii. 318, 12. *Panz. Faun. Germ.* 7, 11, ♀.
Apis neutra, *Panz. Faun. Germ.* 83, 18; *Krit. Revis.* ii. 259, ☿.
Bombus neutra, *Fabr. Syst. Piez.* 347, 24. *St. Farg. Hym.* i. 469, 15.
Bremus Sylvarum, *Panz. Faun. Germ.* 85, 19 (nec Linn., Kirby).
Bombus collinus, *Smith, Zool.* ii. 548, 17, ♂; *Mon. Bees Great Brit.* 223, 11.

I believe the above synonymy to be the most correct which has been given. I have proved to my perfect satisfaction that neither B. Cullumanus or B. Burrellanus are varieties of the male of this species; a comparison of the generative organs decides that point. I gave B. Cullumanus as a variety in my 'Monograph' on the authority of Schiödte and Nylander. Since the publication of my work I have had an opportunity of examining nearly a hundred examples of the male, from the collection of the late Mr. Heysham. These vary considerably in colouring; in some the apex of the abdomen is rosy red, in others it is white, separated from the black band by a narrow line of fulvous; in rare instances the abdomen is nearly entirely black, having at the tip only a few cinereous hairs. M. Drewsen informs me that he has them with that part quite black. It is strange that although Mr. Heysham captured the males in such abundance his collection did not contain a single female. I possess numerous examples of all the sexes, from Denmark, which agree exactly with British examples. This bee constructs its nest underground. I possess a single example of the female, which I believe was taken in Yorkshire; Mr. Walcott has the same sex from the Brighton and Bristol Downs. In the collection of M. Drewsen is a beautiful series of the varieties of all the sexes; the female is sometimes black, with the apex of the abdomen rosy red; the males and workers run also into this extreme variety. This variety of the female would of course resemble B. Derhamellus, but there is less red at the tip of the abdomen and it is of a paler tint, and the corbicula on the posterior tibiæ is black.

13. B. terrestris, *Smith, Zool.* ii. 547, 10; *Mon. Bees Great Brit.* 224, 12. *Nyl. Revis. Ap. Bor.* 262, 7 (nec var. B. Lucorum). *Westw. Nat. Libr.* xxxviii. 243, t. 14, ♂, ♀, ☿.

Apis terrestris, *Linn. Faun. Suec.* 424, No. 1709, ♀? *Cab. Mus. Lin. Soc. Don. Brit. Ins.* iii. 41, t. 88, f. 1. *Kirby, Mon. Ap. Angl.* (var. γ and ε, ♀); Specimen in the Museum of the Entomological Society.

I have very great doubt of this being the Linnean A. terrestris; in the first place, both Schiödte and Dahlbom, to whom I showed specimens of the insect, told me it was new to them, and not found, to their knowledge, in Sweden or Denmark. The specimen in the Linnean Cabinet I think must have had the label attached to it in mistake; there is a female of B. Lucorum in the same drawer, and that, I believe, is the specimen to which it rightly belongs; I have no doubt that the female of B. Lucorum is the true A. terrestris of Linneus. Dr. Nylander thinks B. Lucorum a variety of B. terrestris: this I feel assured is not the case; I have taken many nests of both insects, and never found them intermingled; and I have taken B. Lucorum *in coitu* several times, but never with the male of "terrestris." That the species do sometimes mix in community appears certain, as Mr. Trimmer communicated the fact to Mr. Kirby, who united the females of Lucorum and terrestris, describing his A. Lucorum as a male of which he did not know the female: this has been the practice of most naturalists since the time of Linneus.

14. B. Lucorum, *Illig. Mag.* v. 166, 5. *Fabr. Syst. Piez.* 350, 37, ♂. *Smith, Zool.* ii. 546, 6, ♂, ♀, ☿; *Mon. Bees Great Brit.* 225, 13. *Nyl. Revis. Ap. Bor.* 262 (var. terrestris).

Apis Lucorum, *Linn. Faun. Suec.* 427, No. 1716, ♂. *Cab. Mus. Linn. Soc. Fabr. Ent. Syst.* ii. 322, 35. *Kirby, Mon. Ap. Angl.* ii. 336, 89.

Apis terrestris, *Linn. Faun. Suec.* 424, No. 1709, ♀. *Christ. Hym.* 127, t. 7, f. 2, ♀.

Apis Cæspitum, *Panz. Faun. Germ.* 31, 19, ♂.

Bombus terrestris, *Latr. Hist. Nat. Ins.* xiv. 64, 1, ♀. *Fabr. Syst. Piez.* 343, 4. *Dahlb. Bomb. Scand.* 34, 5, f. 5. *Zett. Ins. Lapp.* 473, 4. *St. Farg. Hym.* i. 467, 13. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 118, 12. *Nyl. Ap. Bor.* 233, 13.

Bombus sporadicus, *Nyl. Ap. Bor.* 232, 15.

This species is widely distributed, being found in Denmark, Sweden, Finland, Lapland and Siberia; I have also seen a form of it from

Greece and Sicily, which has the corbicula pale fulvous. Although the female does not appear to be subject to vary, the male does so very considerably; from the normal colouring of the species — black, with a yellow band on the collar and base of the abdomen, with its tip white — it varies to a form nearly entirely yellow, with a faint dark band between the wings, and one or two on the abdomen.

15. B. lapidarius, *Latr. Hist. Nat. Ins.* xiv. 64, 2, ♀. *Illig. Mag.* v. 169, 30. *Fabr. Syst. Piez.* 347, 25. *Dahlb. Bomb. Scand.* 30, 1. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 116, 11. *Westw. Nat. Libr.* xxxviii, 252, t. 16, f. 1, ♂, 2, ♀. *Smith, Mon. Bees. Great Brit.* 228, 15, ♂, ♀, ☿. *Nyl. Ap. Bor.* 238, 25.
Apis lapidarius, *Linn. Faun. Suec.* 424, No. 1712. *Fabr. Ent. Syst.* ii. 329, 25. *Don. Engl. Ins.* iii. 97, t. 108, f. 1, ♀, t. 58, f. 2, ☿. *Kirby, Mon. Ap. Angl.* ii. 363, 106.
Bremus Truncorum, *Panz. Faun. Germ.* 85, 21, ♂.
Bombus Lefebvrei, *St. Farg. Hym.* i. 461, 4, ♀ (var).

This species is found throughout Europe; it is not subject to vary. A rare variety having a yellow collar does sometimes occur; this is the B. Lefebvrei of St. Fargeau. I have only seen a single example captured in this country; it was taken at Sandwich, in Kent, and was in the collection of the late Mr. Wing.

16. B. Hortorum, *Latr. Hist. Nat. Ins.* xiv, 65, 5. *Illig. Mag.* v. 166, 14. *Dahlb. Bomb. Scand.* 38, 12. *St. Farg. Hym.* i. 466, 12. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 120, 16. *Smith, Mon. Bees Great Brit.* 230, 16. *Nyl. Ap. Bor.* 231, 11.
Apis Hortorum, *Linn. Faun. Suec.* 424, No. 1710. *Kirby, Mon. Ap. Angl.* ii. 339, 91.
Bombus autumnalis, *Fabr. Syst. Piez.* 352, 47, ♂.

I have never met with any varieties of this species. In general coloration it corresponds with the B. ruderatus of Fabricius, but it is a smaller insect. Fabricius gives as the habitats of B. ruderatus Denmark and Madeira; I have obtained the sexes of this insect from both localities, and, by a comparison of the male organs, have satisfied myself of its being distinct from B. Hortorum. In my opinion B. ruderatus is only a highly-coloured form of B. subterraneus. M. Drewsen has sent to me varieties, as he considers, of this species, but I do not agree with him in that opinion; I believe them to be females and workers of B. Latreillellus: these are destitute of yellow colouring, with the tip of the abdomen white; in some, the scutellum has a faint tinge of yellow.

17. B. Latreillellus, *Illig. Mag.* v. 164, 11, ♂. *Dahlb. Bomb. Scand.* 39, 14. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 119, 14. *Smith, Mon. Bees Great Brit.* 231, 17. *Nyl. Ap. Bor.* 234, 18; *Revis. Ap. Bor.* 261.
Apis Latreillellus, *Kirby, Mon. Ap. Angl.* ii. 330, 84, ♂.
Apis Tunstallana, *Kirby, Mon. Ap. Angl.* ii. 346, 94, ♀.
Bombus Tunstallanus, *Illig. Mag.* v. 166, 16. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 119, 14, ♀. *Nyl. Revis. Ap. Bor.* 261, 4.

The synonymy of this species is, I think, undoubtedly correct. In addition to the discovery of several nests, whence I obtained the sexes, I captured three pairs *in coitu*. The species is extremely abundant at Southend and at Walmer, in Kent. I have received the species from Denmark as a variety of B. Hortorum, that is, female and worker, the male being correctly named B. Latreillellus.

18. B. subterraneus, *Illig. Mag.* v. 169, 32. *Fabr. Syst. Piez.* 350, 39, ♀. *Dahlb. Bomb. Scand.* 38, 11. *Drews. & Schiödte, Kröy. Tidsskr.* ii. 116, 11. *Smith, Mon. Bees Great Brit.* 232, 18. *Nyl. Ap. Bor.* 239, 27.
Apis subterranea, *Linn. Faun. Suec.* 425, No. 1718, and type in *Cab. Linn. Soc.* ♀. *Fabr. Ent. Syst.* ii. 322, 37.
Apis Harrisellus, *Kirby, Mon. Ap. Angl.* ii. 373, 110, t. 18, f. 7, ♀, 8, ♂.
Bombus Harrisellus, *Westw. Nat. Libr.* xxxviii. 256, t. 18, f. 1, ♂. *Smith, Zool.* ii. 550, 16.
Bombus flavonigrescens, *Smith, Zool.* iv. 1556.
Apis ruderata, *Fabr. Ent. Syst.* ii. 317, 10, ♀.
Bombus ruderatus, *Fabr. Syst. Piez.* 344, 6.

This species is extremely variable in colouring; the most highly coloured, B. ruderatus, has the thorax in front, the scutellum and the base of the abdomen yellow; every shade of difference occurs between this form and one entirely black. The variety with the apex of the abdomen whitish and otherwise end entirely black I formerly considered the B. soroensis of Fabricius. It will probably be questioned whether I am justified in considering the B. Harrisellus a variety; indeed Nylander gives it with doubt in the revision of his Apis borealis; one reason for my doing so is based upon the fact of my being unable to distinguish any difference in the form of the generative organs of the black and highly coloured males; and in the second place, having in my possession a male and female, taken *in coitu*, and presented to me by Mr. Baly. The latter fact it may be said is not conclusive evidence, since I myself on one occasion captured the male of B. lapidarius in connexion with the female of B. terrestris: this is, however, the only instance which I have observed during twenty-five years of assiduous collecting, therefore such occurrences must be rare. Should the discovery of a colony, in which all the individuals are black, be made, a doubt of the propriety of uniting these varieties might be entertained; but even then, having in every instance, in undoubtedly distinct species, found a most distinct difference in the form of the male organs, I should be more inclined to consider the black colony, as nothing more than an entire brood of the extreme variety of the species. In M. Drewsen's collection the B. Harrisellus is sent as a variety of B. subterraneus; all the sexes stand there without a doubt attached to them.

FREDERICK SMITH.

Rough Notes on Canadian Hymenoptera.

By W. S. M. D'URBAN, Esq.

I MUST plead want of leisure for having bestowed only slight attention on the Hymenoptera during the three years of my residence in Canada, but Mr. Frederick Smith, of the British Museum, having obligingly determined some of the few species I collected, I have assembled together the notes relating to them, which I have found dispersed through my journals of observations on Natural History, and venture to offer them to the 'Zoologist' as a small contribution to Canadian Entomology, which has, unfortunately, been much neglected. Besides those enumerated below, I brought home a few new and undescribed species, which I have presented to the British Museum.

Family TENTHREDINIDÆ.

Cimbex femorata, Linn. (*variabilis*, Klug). I took both sexes of of this fine species north of the Ottawa, in the townships of Montcalm and Arundel, in July, 1858, and I have received specimens from the Falls of Niagara. At the end of August, 1858, in a small lake near Hamilton's Farm, about fifty miles up the River Rouge, a tributary of the Ottawa, into which it discharges itself about nine miles above the town of Grenville, I observed that the water was full of a peculiar, soft, green substance, in star-shaped pellets, which I found to be the excrement of saw-fly larvæ, feeding in great numbers on the leaves of the alder bushes and yellow birch trees overhanging the lake. They were gray on the back, yellow underneath, and sprinkled over with black spots; legs and claws black: one specimen larger than the rest was pale green; head white, with two black spots upon it, a row of black spots down each side, and numerous transverse rows of roughish white spots. As this specimen spun up in a few days it was probably the same as the others, but in a more advanced stage. I did not succeed in rearing it, as it shrivelled up in its cocoon, from the dryness of the house, during the following winter. From its size and colour it may have been the larva of this Cimbex.

C. decim-maculata, Leach. One specimen received from L'Oriqual on the Ottawa. Mr. Gosse reared it from larvæ found feeding on willows in August, in the Eastern townships.

Nematus ———. In 1857 I bred a small species of Nematus from a woody gall which is extremely abundant and easily seen in autumn, after the leaves have fallen, on the twigs of a species of willow growing plentifully in swamps, near Montreal. The dead shoot at the tip of the gall forms a long, curved tube, through which the perfect insect effects its escape in May, each gall producing a single specimen only. I have also reared from these galls numbers of a minute Chalcidite (Lampronotus), which I imagine to be a parasite of the Nematus. A Dipterous fly inhabits a very similar gall on the same willow bushes.

Sirex flavicornis, Fabr. I have had specimens of this Sirex brought to me which had been found in the cellar of a store in Montreal, having most probably issued from the fire-wood kept there. I also took it in the woods of the counties of Argenteuil and Ottawa, in July and August, 1858.

S. albicornis, Fabr. Common at Sorel and Montreal, and very numerous in the woods to the north of the Ottawa, in the county of Argenteuil, from the beginning of July to September. It occurs also on the Southern shores of the Gulf of St. Lawrence. The females vary greatly in size, and the males of this, as well as of the other Sireces, are very rarely seen.

S. dimidiatus, West. One specimen taken about fifty miles up the River Rouge, August 16, 1858.

S. cyaneus, Fabr. Two specimens were taken between the sheets of a bed, in a house near Montreal, in August. They were supposed to have come out of the wood-work of the bedstead, but no holes could be discovered in it.

Tremex Columba, Linn. Every one who has ever visited the neighbourhood of the beautiful city of Montreal in the summer season must have noticed the numerous dead trees, stretching their leafless branches to the sky, and indeed in many spots a very large proportion of the trees, especially the beautiful hickories (*Carya tomentosa?* Nutt.), have fallen victims to the ravages of the Tremex, aided by the larvæ of a small coleopteron (a species of Scolytus) undermining the bark of those trees which have been rendered sickly by the borings of that handsome but destructive insect. Trees weakened by the Tremex larvæ, which bore perpendicularly upwards in the very heart of the wood, are very apt to snap off in high winds, long before they are killed outright. In such cases I have found that the fracture follows the course of one of their long borings, and I have taken the fully-formed insect out of trees with otherwise a perfectly sound and healthy appearance. The perfect insects make their exit from the trees in August and September, and although so abundant are but seldom seen on the wing. I did not meet with it in the woods to the north of the Ottawa, where the other Sireces were so numerous. It occurs at Sorel, on the St. Lawrence, forty-five miles below Montreal, and Mr. Gosse mentions it as having observed it in the Eastern townships.

Family EVANIADÆ, *Leach.*

Pelecinus Polycerator, Fabr. (Needle Ichneumon). I have taken this remarkable insect at Sorel and Montreal, north of the Ottawa, in the township of Grandison, and at the Falls of Niagara, in August and September. At Sorel it is very numerous, though Mr. Gosse, who gives a good figure of it in his 'Canadian Naturalist,' and who speaks of it as occurring in the Eastern townships, observes that it does not appear to be common anywhere. The long hind legs, with their swollen tibiæ hanging down, as it slowly sails through the air a few feet above the ground, give it a very curious appearance, and impress the observer with the idea that the insect is carrying a heavy weight attached to its legs. It inflicts a slight prick with the point of its anal segment when captured in the fingers. I much regret that I have never had an opportunity of studying the economy of this most interesting species.

Family ICHNEUMONIDÆ, *Leach.*

Ichneumon Centrator, Say. Common about Montreal in July, and hybernating under bark of dead trees in autumn.

I. Brevicinctor. (*Vide* Dr. Emmon's 'Agriculture of New York,' Part Insects, 193). Montreal, July.

Trogus exesorius, Serv. In September, 1850, I obtained seven larvæ of the black swallow-tail butterfly (*Papilio Asterias*) feeding on parsley and other umbelliferous plants, in a garden at Montreal, which duly became pupæ; but during the following winter, to my great annoyance, every one of them produced a specimen of this parasite. The breeding-cage which contained the pupæ having been kept in a warm room, the ichneumons were evolved as early as January and February. In its natural state I have taken this Trogus flying in September, but there are probably two broods of it in the season, as there are of its victim, Papilio Asterias, the larva of which, according to Professor Kirtland, is known in Ohio as the "fennel worm," and is ocasionally destructive to the crops of fennel and dill in that state.

T. Obsidianator, Fabr. This large and handsome species is common about Montreal, in July. The sunflower (*Helianthus annuus*) is much frequented by this and other ichneumons, and in England I have observed many species to be equally partial to the Jerusalem artichoke (*H. tuberosus*).

Cryptus ——— ? (Figured, but not named, in Dr. Emmon's 'Agriculture of New York,' Part Insects, pl. 27, f. 11). Common in July and August on the heads of wild parsnip (*Pastinaca sativa*) and golden rod (*Solidago*), plants which overrun the grass-fields about Montreal.

Lampronota ——— ? (Figured, but not named, in Dr. Emmon's 'Agriculture of New York,' Part Insects, pl. 7, f. 12). Very abundant with the last species about Montreal, and I have observed it north of the Ottawa.

Pimpla ——— ? I have bred a species very like our English P. Instigator from cocoons of the "muff-moth" (*Lophocampa Caryæ,* Harris; *Halesidota fulvoflava,* Walker). It makes its appearance in May and June.

Pimpla ——— ? A species allied to the English P. turionella, which is very abundant in July, I have bred from cocoons of the "American lackey-moth" (*Clisiocampa americana,* Harris), so destructive to the foliage of the trees about Montreal, and there popularly termed "Montreal Blight."

Rhyssa Lunator, Fabr. This magnificent ichneumon is numerous on Montreal Mountain in August and the beginning of September. The females are easily captured when ovipositing in some stump or dead tree, for they work their ovipositors so deeply into the wood that they are unable to withdraw them again quickly, frequently breaking them off in their efforts to escape; or when pulled violently away by a bird or entomologist, their long, hair-like instruments may often be seen sticking out of the stumps and trees they frequent. The stump from which I took the first specimen I ever saw was so hard and undecayed that I failed in making a hole in it with a strong knife deep enough to ascertain what the Rhyssa is parasitical on, nor did I ever succeed, though I made many attempts, in discovering what insect it infests.* Many people in Canada, ignorant of Entomology, suppose that it is this ichneumon which kills the trees by "stinging" them, as they term it, and accordingly destroy it when they have an opportunity; and small holes in the bark of trees, made by some beetle allied to Scolytus, have been pointed out to me as having been made by the "sting" of this insect and that of Tremex Columba. Between the anal segments of the female is a wide space filled by a loose, delicate, pea-green membrane, inside which her ovipositor, measuring in some specimens more than four inches in length, is partially coiled up, when she is boring into a tree, in order to shorten it and therefore increase its strength and stiffness. When the ovipositor is thus coiled up it swells out the membrane to the size of a kidney bean, which it much resembles in shape and colour, and the insect has then the most extraordinary appearance that can be imagined; and the first time I observed one engaged in ovipositing, I was at a loss to decide what this curious membranous bag could be. The females vary much in size, and the males are but rarely seen.

Family FORMICIDÆ, *Leach.*

Formica herculanea, Linn. (F. lignivora, *Latr*). Swarms about Montreal, and in the woods north of the Ottawa, &c., tunneling through dead trees in every direction, gradually reducing the interior to a mass of dust. Wood in which it has made its galleries has exactly the appearance of timber which has been attacked by Teredo navalis. In the interior of a hollow but still living balsam fir (*Abies balsamea*) which had been attacked by this ant, and snapped across by the wind, I found the hard knots lying loosely amongst the dust and *débris*, having been gnawed all round to remove the soft wood, just as a dog would gnaw the flesh off a bone. "Misfortune," it is said, "makes one acquainted with strange bedfellows," and certainly Formica herculanea was not one of the least disagreeable with which I was compelled to share my blanket during the five months I camped out in the backwoods, when attached to an exploring party of the Provincial Geological Survey, and I was often awakened by a sharp pinch from the formidable jaws of one of these large ants, which had made the unpardonable mistake of supposing my leg to be a log of wood, and had accordingly commenced mining operations in it, and, like other creatures higher in the scale of Nature when in error, being extremely tenacious in adhering to its own opinion (and my leg) preferred to be torn to pieces rather than relinquish its hold.

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* I have little doubt of the Rhyssa being parasitic on the larva of Tremex Columba; Rhyssa persuasoria is parasitic on Sirex juvencus.—*Frederick Smith.*

F. nigra, Linn. Nests common under stones about Montreal. First active about the middle of April.

F. fusca, Linn. Abundant in rotten stumps on Montreal Mountain.

Family POMPILIDÆ.

Pompilus atramentarius, Dahlb. One specimen taken on blossoms of golden-rod, at the base of Belæil Mountain, August 30, 1857.

P. niger, Linn. Common, Montreal, July and August.

P. ——— ? A very active species, black with a red band across the base of the abdomen, is numerous about Montreal, hanging over the heads of umbelliferous plants and Solidago, in July and August. I have observed it burrowing in dry banks near Lachine. It inflicts an acutely painful wound with its sting when taken in the fingers.

Family SPHEGIDÆ.

Ammophila luctuosa, Smith. Numerous on the sandy common at Sorel, in May.

A. urnaria, Klüg. Abundant at Sorel, where I used to find great numbers clasping the stalks of the garden Asparagus with their jaws, and at Montreal I have taken specimens hanging to the stems of the wild parsnip in a similar manner. I also met with this species when ascending the River Rouge.

Pelopæus cæruleus, Linn. (Dirt Dauber). This insect swarms, from the end of June to September, in the verandahs and wooden passages of houses, in the neighbourhood of Montreal, in the corners of which it constructs its clay nests. In a cell of one of these nests which I opened at the end of July, 1856, I found eleven spiders of different species, and a larva which appeared to have been but recently hatched. In about a week this larva had eaten up all the spiders and grown to many times its original size. It fell out of the broken cell, and tried to spin a cocoon against the sides of a wine-glass which I had placed over it, but being very restless, after spinning for several days, became exhausted and died. The other cells of the same nest I kept through the following winter, and they produced the perfect insect in August, 1857. After spinning its semi-transparent cocoon the larva remains unaltered, excepting in shrinking up a good deal, till shortly before it changes to the perfect state. I have found great numbers of these nests under stones by the water-side, at Lachine, in July.

P. flavipes, Fabr. Not so abundant as P. cæruleus, but not uncommon at Sorel and Montreal. Mr. Gosse has published some very interesting observations on this species in the 'Zoologist' for 1844.

Family CRABRONIDÆ.

Crabro singularis, Smith (*frigidus*, ♀, Smith). Taken up the River Rouge.

C. interruptus, St. Farg. (*confluentibus*, Say). St. Hilaire on the Richelieu, in August.

C. vagus, Fabr. (*trifasciatus*, Say). Common at Montreal, in July and August.

Cerceris deserta, Smith. Montreal, July.

Family VESPIDÆ.

Vespa vulgaris, Linn. Mr. Smith informs me that he cannot detect any difference between Canadian and English specimens of this wasp. It is abundant about Montreal, making its nests in holes in the ground, as it does in England. I fancied when I was stung by one at Montreal that the pain from the wound at the instant it was inflicted was more acute and burning than that from the sting of an English wasp, but it did not cause so much swelling, nor was it so lasting in its effects.

V. maculata, Linn. This wasp is abundant about Sorel, Montreal, and north of the Ottawa. The round nests, sometimes of very considerable size, are composed of a kind of paper made from the fibres of partially decayed wood, and are very numerous in swampy situations, attached to the branches amongst thickets of small poplar and white birch trees. On boarded fences, from the weather-beaten surfaces of which the wasps derive much of their material, small globular nests with a long neck, resembling an inverted decanter or water-bottle, are sometimes seen, and still smaller ones, quite round and of a very fragile texture, containing only half-a-dozen cells, are common under the roofs of verandahs and in similar situations. I do not know whether these various descriptions of nests are all formed by the same species.

There is a large black dipterous fly, a species of Milesia, banded with pale yellow, so closely resembling Vespa maculata in size, colour and markings that I have several times been misled by it. The females of this wasp remain in a semi-torpid condition under the bark of dead stumps, &c., till so late as the middle of May. It is extremely fond of "honey-dew," and may be frequently seen about plants infested by Aphides, scaring away their attendant ants by its large size.

Polistes pallipes, St. Farg. I found this insect very numerous at St. Hilaire, on the flowers of the beautiful golden-rods, in August, 1857, but I have never met with it elsewhere, and I know nothing respecting its habits.

Family ANDRENIDÆ.

Colletes inæqualis, Smith. I observed great numbers of the males of this species flying backwards and forwards over a damp spot by the side of a road near Montreal, on the 26th of July, 1857.

Sphecodes ephippia, Linn. Not very common. Montreal, July.

Agapostemon tricolor, St. Farg. Common about Montreal in August.

Auxochlora lucidula, Smith. On the 24th of August, 1856, I found a nest of this beautiful little bee under the bark of a decayed stump on Montreal mountain. There were thirteen cells arranged perpendicularly in a single row, and composed of particles of decayed wood, very slightly agglutinated together: the four uppermost cells contained larvæ; in the next eight were pupæ in different stages of development, the last having partially acquired its brilliant green colour; and in the thirteenth and lowest a bee fully formed and active, as I found to my cost, for it stung me acutely, and effected its escape from my fingers. I only succeeded in rearing two of the pupæ, which were full-formed on the 4th of September following, the rest and all the larvæ having died and dried up.

A. viridula, Smith. I took a specimen of this species on the flowers of the golden-rod (*Solidago altissima* ? Linn.) on Belæil Mountain, on the 30th of August, 1857.

Halictus parallelus, Say. Common in August about Montreal and St. Hilaire.

Andrena nubecula, Smith. Montreal, August.

A. varians, Rossi. On willow catkins at the beginning of May, near Montreal.

Family CUCULINÆ.

Nomada. Several unnamed species are numerous about Montreal at the beginning of May, in the blossoms of the yellow dog-tooth violet or adder's tongue (*Erythronium Americanum*) and on the catkins of willows. I have presented specimens of them to the British Museum.

Cœlioxys. An unnamed species is common at Montreal and St. Hilaire in August. It appears to me to come near C. vectis, *Curtis.*

Stelis ——— ? A species bred from wild rose twigs bored by Osmia.

Family Dasygastræ.

Osmia simillima, Smith. Taken on the River Rouge, in the township of Arundel, county of Argenteuil. It much resembles O. Latreillii, *Spin.*

O. ——— ? A small species is common at Montreal in July, and I obtained it from bored wild-rose twigs, which I collected round Montreal in the winter of 1856—7.

Megachile acuta, Smith. Very numerous at Montreal, and I took it on the river Rouge, in the township of Arundel. In July nearly every leaf of the rose-bushes in gardens has a circular piece or two cut out from it, but I never saw this bee actually operating on one, though I have captured a female when in the act of cutting a piece out of the leaf of a seedling maple. I once found some old nests of a species of Megachile ? composed of the petals of buttercups (*Ranunculus*) in the crevices of stones in a loose wall. As M. acuta is very like M. Willoughbiella, it is not improbably the species referred to under the latter name by Mr. Gosse, in his 'Canadian Naturalist.'

M. melanophæa, Smith. Occurs abundantly about Montreal at the same time as the last species.

Ceratina dupla, Say. Abundant in July on blossoms of Solidago about Montreal. In February, 1857, I collected numerous shoots of a bramble which had been bored by these bees, and I found six or seven specimens inside them, lying head downwards in a torpid state, having apparently entered them to hybernate, and so late as the 19th of May following I found numerous specimens in bramble-shoots, but they were then active when disturbed. In some, below the perfect insects, were brownish larvæ and cocoons. Many of the shoots, several feet in length, were bored down to the very root. In one I found a bright green larva, like that of a sawfly, which appeared to have been feeding on the pith, and I also met with the nests of a minute Crabro ? (*Rhopalum,* Kirby) filled with Aphides.

Family SCOPULIPEDES.

Melissodes rufo-dentatus, Smith. Montreal, August.

M. denticulata, Smith. A female taken at Montreal in August, 1856, and a male asleep in a head of Hieracium canadense, in the township of De la Wherry, county of Argenteuil, at the end of July, 1858.

Bombus terricola, Kirby. Appears about the middle of May, and is not very numerous.

B. fervidus, Fabr. This and the next species are the most abundant Bombi about Montreal. The females appear about the middle of May, and the males are very numerous in August. I took this species up the river Rouge.

B. ornatus, Smith (*ternarius*, Say ?). Very abundant, with the last species, at Montreal and St. Hilaire.

B. vagans, Smith. Montreal, August; rare.

B. elatus, Fabr. With the last, and at St. Hilaire.

Apis mellifica, Linn. Hive-bees are frequently kept in Lower Canada, and the fields, covered with thistles and buckwheat, afford them an inexhaustible supply of honey.

W. S. M. D'URBAN.

London, May 10, 1860.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

June 4, 1860.—J. W. DOUGLAS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'On the Cultivation of Silk at Mussooree, Himalaya Mountains, with Notes on the Treatment of the Silkworm;' presented by the Author, Capt. Thomas Hutton, F.G.S., Superintendent of Government Silk Plantations. 'On some New Longicornia from the Moluccas;' 'On some New Anthribidæ;' by the Author, F. P. Pascoe, Esq. F.L.S., &c. 'The Journal of Entomology,' No. 1; by the Proprietors. 'The Zoologist' for June; by the Editor. 'Proceedings of the Royal Society,' No. 38; by the Society. 'Tijdschrift voor Entomologie,' Vol. ii. Part 6, Vol. iii. Parts 1, 2 and 3; by the Entomological Society of the Netherlands. 'A Catalogue of the Lepidopterous Insects in the Museum of Natural History at the East-India House,' by Thomas Horsfield, M.D., Ph.D., F.R.S., Keeper of the Museum, and Frederick Moore, Esq., Assistant, Vol. ii.; by the East India Company. 'The Athenæum' for May; by the Editor. 'The Journal of the Society of Arts;' by the Editor. 'The Entomologist's Weekly Intelligencer,' Nos. 188—191; by the Editor.

Exhibitions.

Mr. Stevens exhibited a specimen of Criomorphus castaneus, found alive in the playground of a school at Blackheath. He observed that the species had been recorded as British, by the name of Callidium luridum, but he believed its claims to be considered a native were rather doubtful.

Mr. W. W. Saunders exhibited two specimens of Papilio Antenor, *Drury*, sent from Madagascar by Mr. Layard, and read the following note of their capture by that gentleman. "I have sent two not very good specimens of Papilio Antenor of Drury, which I shot at Boyana Bay, Madagascar. They fly very high, and I could not obtain them in any other way. I have two more from the French missionaries, who said they did sometimes come down."

Mr. Bond exhibited two living examples of Acrocinus longimanus, and two specimens of Deilephila lineata, caught near Brighton on the 12th and 14th ult. He also exhibited two dead pupæ of Sphinx Convolvuli, found last autumn in a potato-field near Canterbury; and an enormous cocoon of Eriogaster lanestris, three larvæ having united in forming it.

Mr. Stainton exhibited specimens of Deilephila lineata from Lewisham and Torquay.

Mr. M'Lachlan exhibited specimens of a species of a species of Cecidomyia, which he had bred from small galls found on buds of the common broom.

Mr. Janson exhibited Sphærites glabratus, Rhinomacer attelaboides and other Coleoptera from Scotland.

Mr. Stainton exhibited Lithocolletis Helianthemi, bred from larvæ mining in leaves of Helianthemum vulgare, received from Ratisbon; and a specimen of Aspidisca splenderiferella, an American species of Tineina, bred from Cratægus tomentosa.

Mr. Moore exhibited a living example of the Eria silk moth (*Attacus Ricini*) bred from a larva which fed on the castor-oil plant.

Mr. Gorham exhibited the following Coleoptera :—

Dinarda dentata. Taken by Mr. Crotch in nests of Formica fusca.
Haploglossa rufipennis. Taken in sandpits near Addington.
Mycetoporus lucidus. Wimbledon Common.
Eucephalus complicans. Charlton.
Lathrobium punctatum. Hammersmith.
Læmophlœus duplicatus. Near Farnborough, Kent.
Chryphagus micrographus. Isle of Wight. Of this species Mr. Lewis had taken a single example near Croydon.

Mr. Tegetmeier exhibited some remarkable specimens, illustrating the production of fertile workers in a hive of the ordinary honey-bee (*Apis mellifica*). They were produced by placing, in March, a comb containing eggs and larvæ in workers' cells only in a hive which had been some time without a queen, and which consequently contained no brood whatever. There was no apparent attempt made by the bees to form a royal cell and to rear a new queen for the workers eggs, but after the latter were hatched the bees produced from them laid eggs. These were deposited in the drone cells only, sometimes as many as six being placed in one cell, of which only one was hatched, a drone in all cases being produced. It was noticed that these fertile workers were hatched and laid eggs before any drones had been observed in the adjacent hives. Huber supposed that such workers were produced by partaking of some of the food designed for the production of a queen, which had been deposited in the cells adjacent to the royal one. This supposition was disproved, as there was no royal cell in the single comb which the hive contained.

Mr. S. Stevens communicated the following extract from a letter from Robert Clark, Esq., and exhibited a specimen of the fly alluded to therein:—

"These insects are pretty numerous in the windward division of the Gold Coast, in March, April, May, November and December, especially in the three former months, before the first rains set in, when the weather is generally close and oppressively hot. As soon as they are observed, either in or about the houses of the Europeans or natives, everything is done to get rid of them, for when they alight on the person they inflict a painfully stinging wound, rapidly followed by a wheal, which becomes the seat of an annoying itchiness. The proboscis, as you may have noticed, is strong and keen, and they readily push it through thick clothing and thin leather. Horses and other beasts of burden suffer severely from their attacks, and there are good grounds for believing that this is the cause why no animal of that description will live upon the windward part of the Gold Coast; indeed, my friend Mr. R. D. Ross was so persuaded of this being the case that he made a strong representation to the head of the Commissariat Department to that effect, suggesting, at the same time, that hammock instead of horse allowance should be granted to the officers of the G. C. A. Corps stationed in the windward districts.

"In 1858 I procured from the late Mr. Consul Campbell, of Lagos, four horses for the use of some of the officers stationed at Cape Coast Castle. They arrived in fair condition, were well stabled, carefully groomed and fed, nevertheless in six or eight weeks from the date of their landing they were all dead. This did not seem to me to arise from the grass, as it was in every respect quite equal to that on which horses feed and thrive admirably on the leeward division of the Gold Coast, at Sierra Leone and the Gambia. The precaution of partly drying it before it was given to the animals was not neglected, and their food was varied with ground nut-straw, which is considered capital fodder for horses both at Sierra Leone and the Gambia. The late Mr. Brodie Cruikshank even imported hay and oats from England, conceiving (I am of opinion incorrectly) that the mortality of beasts of burden depended upon some poisonous herb being mixed up with the grass on the part of the Gold Coast I refer to, but as might be anticipated the experiment in question proved a complete failure.

"With regard to these insects I think I told you that a Mr. Glydden, purser of H.M. store ship 'Buffalo,' to whom I showed them on the Coast, insisted that they are identical with the tzetze described by Dr. Livingstone, alleging that he had met with them in some of the regions of Southern Africa which he had visited."

Mr. Westwood remarked that the insect exhibited was closely allied to the common Tabanus bovinus of Europe, and certainly not the "tzetze" met with by Dr. Livingstone and others, as was asserted in the latter part of the letter just read.

Dr. Wallace communicated the following:—

Remarks on the Occurrence of Rarer British Sphingidæ.

"The fact that in many female Sphingidæ captured in Great Britain and Ireland, in the autumn months, no ova have been found, induces the question as to whether some species may or may not be continuously indigenous. Many think that the absence of ova in the female is merely a question of time, as in the case of A. Atropos, the females of which, notoriously devoid of eggs in the forced autumn specimens, are found in June depositing ova, whence the brood is perpetuated. Others maintain that it is a question not of time only, but also of place; for taking S. Convolvuli, females of which are constantly taken in the autumn months, almost invariably without eggs (in 1846 and 1859 the species occurred most freely: one individual took nearly fifty specimens in 1859, all the females of which were destitute of ova). In this case either a female is hatched in the autumn with eggs, hybernates and deposits ova in the spring, or emerges in the spring from the pupa, or else specimens fly over from abroad and deposit ova in this country. I would ask has ever S. Convolvuli been taken or observed in the spring or early summer in this country, and if so in what condition or of what sex? Are we to look for a development of females of D. Lineata without eggs, in the autumn months, if a hot summer intervenes? A series of observations carefully made as to time, place, condition, sex, and also as to the complete development of sexual organs of any or all of the rarer Sphingidæ, would help to resolve the question. Without giving any opinion myself, I may add the truth can only thus be obtained:—from a series of observations, not from a single capture. Have any of the commoner Sphingidæ, the Smerinthi or others, occurred in the autumn months, and if so were they fully developed? Are any of the rarer Noctuæ to be looked upon in the same light?

"This question appears of more importance than the double-broodedness of some Notodontidæ, about which so much has been written, and I commend it to the attention of entomologists."

Mr. Smith read an extract from Park's 'History of Hampstead,' in which it was stated that in 1782 great numbers of "vermin" appeared on the hedges and trees in that neighbourhood, and that men were employed to beat them off with poles and burn them. These persons experienced considerable irritation on the face and other exposed parts of the person, whilst those who incautiously inhaled the fumes produced by burning them were much indisposed in consequence.

Mr. Stainton considered these "vermin" were the larvæ of the brown-tail moth (*Porthesia Chrysorrhœa*), which had in former years appeared in immense numbers in this country, and the hairs of which and many of its congeners were well known to produce much irritation of the human skin.

Mr. Smith also read the following papers:—"Observations on Cynips lignicola and C. Radicis," and "Descriptions of new Species of Australian Hymenoptera and of a Species of Formica from New Zealand."

Mr. Baly read a paper intituled "Description of some New Species of Sagra; Remarks on that Genus; and the Characters of Cheiloxena, a New Genus belonging to the same Family."—*E. S.*

Eccentricities in the Habits of Foxes. By W. H. Slaney, Esq.

As a zealous preserver of foxes in the hunt to which I belong, and having, in consequence, a good deal to do with gamekeepers and rabbit-catchers within an extensive district, I have many opportunities of ascertaining how it happens that so many both of old and young foxes come to an untimely end. Many are the litters of foxes which are starved to death by the old foxes being destroyed before the young ones can do for themselves; this is often occasioned quite unintentionally and for want of a little forethought, and at other times done from spiteful and vindictive motives, and from a short-sighted view of what is mistakenly supposed to be of advantage to the destroyer. The great mischief arises from the rabbit-trappers' method of setting their traps in a dangerous manner, which might easily be avoided; but these men think that by setting them so as to catch the foxes it will be the means of preserving the rabbits, and secure to themselves a greater profit. In most places where there are many rabbits a set of men are employed to catch them, and, having been been brought up exclusively to this occupation, thoroughly understand how to do so effectually; but instead of confining themselves to their legitimate occupation, they often foolishly try to kill the foxes, because they take from the traps and snares some few of the rabbits for which these men would otherwise obtain sixpence a couple; and, if the farmers are allowed to have the rabbits for themselves, as is frequently the arrangement now made, they will obtain one shilling or one shilling and sixpence per couple more for their own advantage, and thus make on a farm, of say three hundred acres, from eight pounds to ten pounds a year, where rabbits are plentiful, besides well supplying their own household. It will be found an excellent plan to give the rabbits to the tenant, he paying the man for catching them, but the landlord reserving to himself and his agent the exclusive right to appoint a proper and trustworthy person to catch the rabbits. The object of the landlord reserving to himself this right is that it prevents his game being destroyed, by not allowing the men to set their traps in a wrong manner, in open places or in meuses, which they ought never to do, but only down the rabbit-holes, leaving a few links of the chain attached to the trap above ground; this will effectually prevent any old fox being taken. Should the rabbit-catcher wilfully neglect these simple precautions, he will then lose his employment altogether, and become a marked man in the neighbourhood, as a fox and game destroyer whom no one will employ. As a further inducement to be honest it is well worth while to pay these men a few pounds, at Christmas or some other time, as a recompence for the injury the foxes occasionally do them; by this means they will soon find it is better for them to avoid foul play than secretly to adopt it.

I am doubtful whether the following anecdote of a male fox supplying the place of a female or vixen, which had been unfortunately destroyed, and taking upon himself the feeding of their young progeny, is of such rare occurrence as to be a fact worthy of insertion in the 'Zoologist;' but although I have heard of stories to a similar purport I was never before satisfied of the correctness of such statements. I have frequently inquired of huntsmen, keepers, and other persons most likely to know, if such was really the case, and the answer has generally been, they "believed so," but none seemed to know it from experience. The following fact, however, may be relied upon.

A vixen laid up her litter of five cubs in a retired spot, under a projecting rocky shelf, in a small dingle belonging to myself, but adjoining to which, unfortunately, there was one small field or paddock not mine, in which the tenant's sons were accustomed to set traps for rabbits; through this field the poor vixen had often to go to obtain food for her litter; and at last, after the young ones had attained a considerable size, and had become fine merry-looking fellows,—bold enough to stand near the mouth of the earth, regardless of being seen by those who cautiously resorted to the spot to watch them,—the poor mother was caught in a trap, and, after carrying it about for some time, she got it off, but unfortunately some men at plough saw the poor maimed fox, and ran after her and finally beat her brains out, when almost close to her earth and cubs.

The rabbit-catcher employed near the spot, who was also paid for looking after the foxes, having been told of this mishap and of the anger the ploughmen had met with from their master, when informed of their having killed the poor vixen, went the next day to look at the earth, and there saw a fine white-plumed hen lying near it, which was not there the preceding day, and must therefore have been brought by the father of the family. The man then left a few young rabbits for the cubs, and the next day found the rabbits and fowl consumed. He continued occasionally to take the young foxes a fresh supply of rabbits, rats or other food, for two or three days; and shortly afterwards he again found laying near the mouth of the earth, amongst the remnants of other things, a black fowl, brought there like the former by the only remaining old fox, and no doubt many other articles of food had been taken down to their earth by the young foxes to feed on in private: this plan of the man and the old fox alternately supplying the young cubs continued for several weeks, until two oak trees which grew on the bank above their residence were ordered to be cut down, when, unluckily, the trees fell exactly across the foxes' habitation; and since this neither old nor young foxes have been seen there, and no doubt the old fox led the young ones to some more concealed retreat, of which there is one only a field or two distant. That this has been the case there can be little or no doubt, the young foxes being old and strong enough now to feed themselves, with little or no aid from the old fox or the man; but their new place of concealment must have been selected for them by the former, for until they thus bodily decamped they never were known to go further away from the earth they were bred in than a few yards at a time, and were totally unacquainted with the nature of the country around. I have more recently been assured that they have taken up their abode in a small cover a few hundred yards distant from their former home, but in which no earth for them to retreat into has been discovered; I am therefore inclined to think this forced emigration from their birth-place is not intended to last for any great length of time, and ere long a return home may be expected, the corn-fields and vegetation in general being still so backward as to afford little or no shelter to the young foxes, who, in warm dry weather, are very fond of making themselves a play-ground and summer haunt in the centre of some quiet corn-field or other sequestered spot, where they can lay about and enjoy the sun's warmth unmolested by the intrusion of any unwelcome visitor, either biped or quadruped. Whether *pater familias* in the present case deems his duties towards his progeny to have been sufficiently performed, and therefore that it is unnecessary for him to look further after their future welfare, may be doubtful; but now that they have lost that almost indispensable advantage to all young families, the prudent advice and caution of an experienced mother, I have some apprehensions as to their being able to escape the dangers attendant upon their early entrance into active life; curiosity may induce them to venture a trifle too near the rabbit-catchers' concealed trap, though properly set, so that no old fox would be deluded into its fatal grasp; or their presumptive boldness may cause them incautiously to seek a too early acquaintance with the inmates of the neighbouring poultry yard, before being aware of the guardian terrier or other dog placed there in watchful anticipation of some such midnight visitation. If, however, they are lucky enough to escape these and similar evils incident to early life they may then hope to prove their gratitude for the care bestowed upon them, by producing themselves in good health and condition towards the beginning or middle of October, when called upon by a gentle admonition of the huntsman's horn to come forth and show themselves to their admiring friends.

That these young foxes were long supported and fed by the old dog-fox there can be no doubt; whether such would have been also the case had the vixen been alive I cannot say, though I have heard it said both parents do assist each other in this labour of love. I may here add a word on the nature of the food on which foxes feed, and of this there is scarcely any kind of which they will not thankfully partake, when a little pressed by hunger, in frosty and bad weather,—poultry, game, rats, rooks, a dead (skinned) sheep or lamb; for, except in the mountainous districts of Scotland and Wales and some parts of the North of England, where rabbits and other food are not to be had, I deny that foxes kill sheep or lambs, though such is, I am aware, often ignorantly laid to their charge, and in many instances, after due inquiry, I have succeeded in proving to those who insisted on the contrary how totally unfounded is this accusation. A dead lamb just born may occasionally be taken, but not a lively and well-to-do one, which, if found to have been killed, has been destroyed by some dog, or, if missed, is found afterwards starved to death in a drain, or hung fast in a bramble, or lost in some neighbouring plantation or copse. A part of a dead horse or cow, or almost any kind of garbage, is all welcomed where there are young ones, but nothing is more kindly taken to by foxes than rats, of which I have often sent them dozens at a time, after the slaughter occasioned by taking down a corn-rick, when I thought the old vixen was somewhat pressed to supply her young, and the next day the dead rats were sure to have all disappeared. During the winter season, when snow is on the ground, it is a curious sight to trace the foxes along the sides of a small trout-stream, where rats abound; near this place, when the waters are somewhat out and the rats are driven from their holes, it is not an unusual thing to shoot fifty or sixty in the course of a few hours. In following the course of this little stream the marks appear in every direction in the snow where the foxes have passed and re-passed night after night in search of the rats and moor-hens, and many places show where a fox has captured a rat while it was sitting at the edge of the water, little thinking of the stealthy approach of the foe behind it.

Amongst the almost universal food foxes partake of I was not till lately aware of their feeding on fish, which it may be thought difficult for them to catch; but it is a well known fact that the polecat, a smaller if not less active animal than the fox, is in the habit of supplying itself with eels for winter consumption, deposited in some safe hole or place near its retreat, and, singular to say, these unfortunate eels are not quite deprived of life before being stowed away, but are only so far nipped or bitten in the neck or back of the head as to prevent their getting away, and thus they are kept in a fresh state for a long time for their merciless captor's supply. Yet how, it may be asked, could the polecat catch this nimble kind of food? Such, however, is the case.

Close at hand here an old vixen and a litter of five cubs had taken up their quarters in an old broomy bank containing a great number of rabbits, which might have been seen running about in every direction close to where the young foxes were accustomed to come forth with the old vixen to enjoy the warm sun and "to recreate themselves," as is said of other animals in one of the fine old glees sung at the glee clubs in former days. Wishing to ascertain if foxes would feed on fish, I thought this a good opportunity to try the experiment; although, the spot being close to a small stream where very shortly before three otters had made their appearance (one of which had, however, been caught by a pack of otter-hounds invited for that special purpose), I had some doubts whether the otters might not claim some share of the fish: I nevertheless determined to put down a brace of very large carp, weighing from fourteen to fifteen pounds each, and which I had found in a very forward and decomposed state in one of the adjacent pools. These two far-gone fish very vividly recalled to the mind the attributes of Caliban, who bore about him "a very ancient and fish-like smell," but hardly equal to that of the two carp. Thinking this might perhaps prove attractive to the young foxes, I desired the two fish might be carried to the bottom of the bank and placed in a conspicuous place, where, without disturbing the foxes, their method of proceeding might be observed. At first no attention seemed to be paid to these high-flavored temptations; but I should mention that, it being just at the time when rook shooting was going on, the young foxes in consequence obtained a large supply of old rooks, some killed by accident and some purposely, but which were too old and tough to be converted, like their progeny, into pigeon-pies, and were further aided by the addition of all the old rabbits which the keeper took in his traps and snares during the night. Whatever might have been the cause, whether the wind (for it was then very hot weather) was not quite in the right quarter to attract the young foxes to this savory meal, certain it is that the two fine carp remained for the first night and day within sight untouched and unnoticed; but on the second night a very different result took place, and, if I remember correctly, it was on a Friday, which might have had something to do with the change which so suddenly took place, for on this same Friday the two fish disappeared, a few of the bones and scales being all that was left to show their former whereabouts. When it is remembered that carp are a very close-grained and firm fish, thirty pounds weight of such delicate repast might be deemed sufficient to save these young foxes from complaining of being harshly treated and put on a fasting fare.

William Henry Slaney.

Hatton Hall, June 12, 1860.

Parturition of Bears.—The fact that the parturition of bears occurs during hybernation was mentioned long ago, I believe in Lloyd's 'Field Sports in the North of Europe,' but it is many years since I saw the book, which it is now utterly out of my power to refer to. Though the main portion of that amusing work consists of sporting adventures, it is interesting also from the information it affords on various points of Natural History.—*Arthur Hussey; Rottingdean, April* 17, 1860.

The Common Bat (Vespertilio pipistrellus) *Flying at Mid-day.*—I was extremely surprised on Sunday last, April 8th, whilst walking in the grounds of Downing College, at mid-day, to have my attention drawn by a gentleman to a bat, briskly flying about in the open glare of the then brightly shining sun. The bat appeared to be in pursuit of some insects flying around a row of lime trees. Is this of common occurrence? If so, would one of the able readers of the 'Zoologist' kindly inform me, as I am not aware of a similar instance being recorded.—*S. P. Saville; Jesus Terrace, Cambridge, April* 13, 1860.

[Many other similar instances are recorded in the 'Zoologist.'—*E. N.*]

A Bat Flying in the Sunshine.—On the 30th of April, being a bright clear day, about two o'clock in the afternoon I was surprised by seeing a bat flitting up and down the lawn in front of the house, apparently unaffected by the dazzling sun, which was shining brightly at the time. I succeeded in obtaining it, and it proved to be the common small black bat, which is, I understand, gradually becoming scarce.—*J. H. Belfrage; Muswell Hill, May* 4, 1860.

Birds of Amoy.—I have often observed the osprey flapping slowly along with its heavy *buteonine* flight over the deep bay between the island of Amoy and the high Pagoda-topped hill of Nan-tai-woo, and have on other occasions seen him sitting erect on some oyster-stone on the river sand-flats, but his shyness has always evaded approach. Winter and summer a bird of this species is often to be met with. I can at last announce with satisfaction the acquisition of a fine female. A Chinaman brought me the bird, shot, as he informed me, at Quemoy. I took down the following notes from the specimen while fresh. Length, $22\frac{1}{2}$ inches. Wing from flexure, $19\frac{1}{2}$, extending 1 inch beyond the tail. Expanse, 62. Tail, 9. Bill from base of culmen to tip in a direct line, $1\frac{1}{2}$; along the ridge-curve, $1\frac{7}{10}$; cere, $\frac{1}{4}$; edge of lower mandible, $1\frac{6}{10}$; depth at the base, $\frac{8}{10}$. Tarsi, $2\frac{3}{10}$. Mid toe, 2; its claw along the curve, $1\frac{6}{10}$; outer toe, $1\frac{7}{10}$; claw, $1\frac{8}{10}$. Inner toe, $1\frac{1}{2}$; claw, $1\frac{7}{10}$. Hind toe, $1\frac{3}{10}$; claw, $1\frac{7}{10}$. Bill bluish black; base of upper, and basal half of lower mandible, deep leaden blue; cere also leaden blue. Iris bright yellow. Legs pale bluish white, occasionally patched with a leathery tinge. Claws black. A comparison of the dimensions of this female with McGillivray's description of the female osprey shows how much smaller our bird is. Ours tallies more nearly with the description in the 'Fauna Japonica' of the variety from Japan, spoken of as the Pandion Haliætus orientalis, which is referred to Gould's Australian species, Pandion leucocephalus. The bird is known to the native fishermen as the He-pew or Fish-tiger. I was much delighted the other day in watching a pair of avocets feeding in the mud at the head of the harbour. They walked steadily, the one following the other, flourishing their beaks from side to side through the mud with a measured and graceful motion, recalling to mind somewhat the play of mowers' scythes as the mowers slowly advance in order through a field of grass. The idea, however, may be rather fanciful. I did not shoot the birds, but I have no doubt that they were the true recurvirostra, a specimen of which I have received from Swatow, a few miles down the coast. This is the first winter that I have procured the sanderling and turnstone, two birds almost cosmopolite in their distribution. Among specimens of the former I can find no difference in size from those in McGillivray. The bird at first sight looks like a Tringa with its ordinary tints partially washed out, but a closer examination shows many points of difference. The forehead is full and round, almost as in the Charadriadæ. The beak is short, broad, black, and polished at the end. The feet are broad and rough, and the hind toe minus. I have two specimens of the Strepsilas Interpres, a male and a female, and as they differ somewhat, though triflingly, in size from the British bird, I will here mention measurements taken from the fresh examples:—

	Length.	Wing.	Tail.	Bill.	Tarsus.	Mid-toe.	Claw.
Female . . .	9	$5\frac{9}{10}$	$2\frac{1}{2}$	$\frac{9}{10}$	$1\frac{1}{12}$	$\frac{19}{20}$	$\frac{2}{10}$
Male	$8\frac{8}{10}$	$5\frac{6}{10}$	$2\frac{4}{10}$	$\frac{10}{12}$	$1\frac{1}{12}$	$\frac{19}{20}$	$\frac{2}{10}$

The bill in both sexes is of a dark bluish or neutral tint, approaching to black. Inside of mouth flesh-colour, with more or less brown. The male is blacker and brighter in tints, and has its legs of a fine bright orange-red, whereas these tints in the female are tinged with a dull brown.—*Robert Swinhoe; British Consulate, Amoy, February* 21, 1860.

The Oil-gland in Birds.—Many and many a time have I communed with you on the oil-gland of birds; I will now resume the subject, without, however, quoting a single line from my old grandmother's library in support of its supposed uses, or adverting to remarks in the pages of a late periodical, now happily defunct, to the manifest advantage of orthodox Ornithology. It so happens that I have daily, and I may add hourly, opportunities of watching narrowly the habits of some forty barn-door fowls. All these birds, with now and then a few ducks in company, are everlastingly preening every part of their plumage which can be reached through the application of the bill. Let us take the common notion for granted, that birds do actually squeeze a substance from the gland and then apply it to the plumage, although I defy any living man to declare that he has ever detected the smallest portion of this mysterious lubricating fluid, either in the bill of the bird or on the plumage. Now all and every one of these forty birds may be seen applying their bills to their rump, and all, without a single exception, using the same mode in the general preening of their plumage, *precisely* the same mode. Well, but three of these birds have no tail, and of course no oil-gland. Still, after the operation of preening has been gone through, the feathers of these three birds are beautifully glossy, and no eye can discern any difference whatever betwixt them and the feathers of those birds which possess the oil-gland. These are facts undeniable—not theories; what say you to them? If the lubricating system with oil from the gland holds good in birds, why should it not equally hold good in beasts? I have here a favourite Tom cat, and I often see him apply his mouth to his posterior regions: who knows but that Tom is then procuring wherewith to fertilize his fur andi ncrease its wonted brightness? —*Charles Waterton; Walton Hall, June* 8, 1860. *Communicated by Dr. Hobson.*

Arrival of Summer Birds.—While in the garden here, on the 6th of April, the weather having been cold and dull for some time, I observed a small bird, which, from its general appearance, I imagined to be the chiffchaff, perched upon a shrub, from which it flew down from time to time, apparently in pursuit of flies, much in the manner of the flycatcher, though up to this time, probably owing to the inclemency of the weather, I had not heard its peculiar note. The next day, however, being warm and sunny, I for the first time heard it in the morning, and it continued for intervals throughout the day, thus confirming my previous observation. On the 19th I shot a wryneck also in the garden in very good condition, and on the 23rd of the same month, in the afternoon, I saw a blackcap on one of the upper branches of a larch, singing melodiously; indeed I have noticed an unusual number of these birds this season, many of them in remote situations. About this time I also heard the whitethroat. On the 25th of the same month a pair of swallows were seen by me for the first time this season, being the same day on which I first noticed them last year, in a different part of the country, though the summer was much more advanced. Owing to the lateness of the season, I have heard it remarked that the migratory birds have been much later in their arrival, but I cannot say this has been the result of my observations.—*John Henry Belfrage; Muswell Hill, May* 4, 1860.

Occurrence of the Osprey (Falco haliæëtus) *at Sherburne.*—A very fine male osprey was shot near the mill-dam at Sherburne by one of the keepers of Sir T. D. Ledgard of Ganton Hall. It had been seen about for some time previously, and traps were set for it, but did not succeed. It was afterwards seen with a trout, and was shot. The bird has been forwarded by Sir T. D. Ledgard to me to be preserved.—*A. Roberts; Naturalist, King Street, Scarborough, June* 2, 1860.

Occurrence of the Sparrow Owl in Yorkshire.—I do not recollect ever mentioning to you for insertion in the 'Zoologist' an account of my having received from a young clergyman, a son of Mr. Bury, who has the church at Osbarton (my brother-in-law Mr. Foljambe's place), who, knowing I had a very fine collection of British birds, sent me a small owl in a very curious case, which was shot in the East Riding of Yorkshire, not far from Beverley, by a keeper, a brother of Sir Thomas Whichcote's keeper, of Asworley, Lincolnshire. He sent this bird to his brother, who gave it to Mr. Bury, from whom I received it. I found out afterwards, from looking at Audubon's 'Birds of America,' that it was the sparrow owl (*Strix acadica*), which is rather common in some parts of America, but totally unknown in this country.—*W. M. E. Milner;* 17, *Brunswick Terrace, Brighton, June* 16, 1860.

A Tame Cuckoo.—I am enabled to give the biography, unluckily but a short one, of a cuckoo which was taken late last summer from the nest of a greenfinch, and came into the possession of a shoemaker's wife, a great petter of birds, in the village of Staverton, Northamptonshire. I first heard of the bird early in January from a lady, my sister, who had seen it a few days previously. It was fed upon meat and eggs, was brought up—unconfined—in the living room of the cottage, where it perched as near the fire as practicable, and was as tame as a cat, one or two of which animals were its companions and playfellows. The night was passed in a box covered up close to the fireplace. When the cuckoo was visited by my informant it appeared like a young bird not fully fledged, but its mistress stated it to be then moulting, and that it had been well feathered some time before. That the cuckoo had survived the severe cold of last December was a circumstance to afford some hope of preserving it through an English winter, though on the other hand the fact of its moulting during that season was unfavourable to such a prospect. However, the bird lived some time longer, but I heard a few weeks ago that it had died (appropriately ?) on the 1st of April, so that this experiment to acclimatize a cuckoo, if promising at the commencement, has not succeeded better than others.—*Arthur Hussey; Rottingdean, June* 16, 1860.

Return of a Hooded Crow to a Walled Garden in which it had been confined.—Some of your readers may probably recollect the curious example of instinct shown by a herring gull which for some years has been in the habit of returning each winter to the Zoological Gardens, where it was reared. A yet more singular instance has lately come under my observation. In the beginning of the winter 1858—9 a hooded crow, slightly wounded, was given to the son of Mr. Vaux, brewer, Sunderland. The crow was turned into a walled garden and poultry yard, and fed regularly with the fowls, whom it exhibited no inclination to molest. It soon recovered, but remained, though never pinioned, until the month of March, 1859, when it disappeared. This winter it returned to the garden and joined its old companions of the poultry yard; nor did it, up to a fortnight ago, ever quit the premises, feeding with the hens, and roosting every night in its accustomed tree. The kindness with which it had been treated has won its confidence, and it exhibits no more fear of man than does a domestic fowl.—*H. B. Tristram; Castle Eden, Ferry Hill, April* 5, 1860.

Occurrence of the Serin Finch (Fringilla Serina, *Linn.*) *in England.*—On a recent visit to Brighton I was shown a specimen of this bird that was caught in a clap-net near there, on the 20th of June, 1859. It is in the possession of Mr. H. Pratt, of 35, Duke Street, Brighton, who had the bird very shortly after its capture. It was described as being quite alone and very wild. I believe it is a female. I have since seen another, a fine male, captured near London last autumn, shortly after the severe storm in October. I believe this is the first time this bird has been recorded as a visitor to this country.—*Frederick Bond; Cavendish Road, June* 7, 1860.

Localities of Sylvia Luscinia.—In Professor Kinahan's very interesting paper on Migratory Birds, published in the 'Zoologist' last month, some remarks occur regarding the English localities of the nightingale (*Sylvia luscinia*). Having studied the subject so carefully as he has done, I presume Dr. Kinahan is acquainted with all published records hitherto made; if so, I have several new localities to add to those named in his paper; and I think it right also to point out that he is in error as regards the assertion, "It is common only in the easternmost of these shires," meaning the easterly portion of England. Wiltshire is not among those enumerated by Dr. Kinahan, yet the nightingale not only occurs in both north and south of it, but is extremely abundant in my neighbourhood. In the woods of Clarendon Park, and all about Farley and Alderbury, it may be heard singing all day long as well as at night, and not merely a single individual here and there, but generally several in one spot. I have also met with the nightingale in the south of Dorsetshire, at Wareham, where it is not infrequent, and have heard of its occurrence in North Dorset, at Shaftesbury, and again in Northamptonshire, near Northampton, as also in Surrey, at Clapham Park. These are all additional localities to those mentioned in Dr. Kinahan's paper, and as this charming warbler is an object of interest to everybody, the fact of its being more generally distributed than hitherto supposed will hardly be unacceptable for record.—*A. R. Hogan; Pitton, near Salisbury, June* 11, 1860.

Occurrence of Richardson's Skua (Lestris Richardsonii) *at Eastbourne.*—A beautiful male specimen of the above rare bird, in the most perfect adult plumage, was shot at Langney Fort, Eastbourne, on Wednesday, June 6th, by a man named Ward, and which is in my possession. It is exactly in the same state of plumage as in Morris's plate, except that the legs are not "mottled." I have never seen, even in the British Museum, one in such perfect plumage, those generally that have come under my notice being birds of the first or second year; in fact, as far as my own observation has gone, the state of plumage that this bird is in is unique. Weight, 11 oz. Length, 19½ inches. Breadth from tip to tip of wings, 41 inches. Length of two middle tail-feathers beyond the others, 3 inches.—*John Dutton; South Street, Eastbourne, June* 16, 1860.

Occurrence of Richardson's Skua at Kingsbridge.—I have to inform you that on the 29th of May there was brought to me a male specimen of Richardson's skua, which was picked up dead in a field, since which, namely on the 6th of June, I received from a friend a handsome specimen of Buffon's skua, which he had just shot in company with another, which he supposed to be a female, in the Kingsbridge estuary. I find very considerable differences existing between Richardson's and Buffon's skua; the latter having the two middle tail-feathers nearly seven inches long, being nearly four inches longer than the former, the bill being shorter and slighter; the legs are shorter and of a different colour, being black above the knee, from thence to the foot light blue; the webs and toes, which are smaller than in Richardson's, are quite black; the general appearance and colour of the birds are quite different.—*H. Nicholls, jun.; Kingsbridge, June* 13, 1860.

Common Tern (Sterna hirundo) *shot during the late gale.*—I record the capture of one of those fairy-like birds, the common tern. It was shot at Kettering, Northamptonshire, on Monday, the 28th of May last, the day of one of the most violent wind storms that has visited England for upwards of forty years; in fact it could be called little short of a tornado: huge trees which braved the almost irresistible hurricane of the 28th of February were compelled to succumb; the crops of fruit which were so promising have sustained great damage.—*S. P. Saville; Jesus Terrace, Cambridge, June* 12, 1860.

Note on the Carnivorous propensities of the Blackheaded Gull (Larus ridibundus).—Two days since I visited Scoulton Mere in this county, where from three to four thousand pairs of these gulls nest every year, of which interesting and beautiful colony a full description is given in 'Yarrell's British Birds,' vol. iii. p. 434. I brought away with me a dead gull, which appeared to have been shot and to have died after reaching its home. The stomach of this specimen was found on dissection to contain the remains of two small birds, one of which was apparently a meadow pipit and the other a willow wren, both being species which nest upon the ground, and which might therefore have been pounced upon by the gull whilst sitting on their eggs. Judging from the remains of these small birds I believe them both to have been adult. I was not previously aware that these gulls destroy birds, although I knew that they frequently devour mice, and that when a corn-stack is removed from any of the fields in the neighbourhood of their nesting-place they often make their appearance during the operation and employ themselves in capturing the mice which escape from the stack during the removal of the sheaves.—*J. H. Gurney ; Catton, Norfolk, May* 30, 1860.

Deilephila lineata in the Isle of Wight.—On the 21st of May my sister had the good fortune to capture a tolerably fresh specimen of this rare insect. It was beaten out of an "Arbor-vitæ" in the pleasure-grounds of a neighbour, at Bembridge. Deilephila lineata seems to have twice come under the notice of Dr. Bromfield, as recorded in the 'Zoologist' (Zool. 803 and 1444). It is also known to have been taken in the "Undercliff," but I am not aware that it has occurred for many years past until the present capture.—*A. G. More ; Bembridge, June* 2, 1860.

Occurrence of Deilephila lineata.—Three specimens have been taken at Brighton ; one, a female, by a boy, on the 12th of May ; one, a male, by Mr. Swaysland, on the 14th ; and one I saw in the possession of Mr. Pratt, taken, I think, on the 17th. Two others were seen hovering over flowers, and one other was taken but pulled to pieces by a child between the 17th and 26th of May, all at Brighton. Another specimen, very much worn, was taken hovering over flowers on the downs, Freshwater, Isle of Wight, on the 20th of May ; sex not stated. — *Frederick Bond ; Cavendish Road, June* 7, 1860.

Description of the Larva of Eupithecia rectangulata. — Short, thick and stumpy. Ground colour very pale yellowish green, darker when young. Central dorsal line varying much in breadth and intensity of colouring, sometimes rusty red, sometimes dark green, frequently very indistinct, and sometimes wanting altogether. Segmental divisions reddish. Spiracular line rather darker than ground-colour. Whole body very transparent. Circulation very visible under central dorsal line. Back sprinkled with a few very short hairs. Dorsal stripe, when young, broad, distinct and rusty red. Feeds in April and May, on the blossoms of apple and wild crab. Full-fed the middle of the latter month. I took a number of these larvæ this spring in Suffolk. I noticed that those which fed upon wild crab were much brighter and darker coloured than those upon the apple blossoms in the gardens. In habits and shape this larva strongly resembles that of E. Haworthiata. The pupa is enclosed in a slight earthen cocoon. The thorax and wing-cases are yellow suffused with olive. Abdomen tapering, lower divisions and tip blood-red. The perfect insect appears in about a fortnight.—*H. Harpur Crewe ; Shooter's Hill, Kent, June* 18, 1860.

Description of a Variety of the Larva of Eupithecia assimilata.—Ground-colour pinkish, back and belly tinged with green. Central dorsal line dark green, having on each of the middle segments a black dot on either side. Segmental divisions reddish. Body thickly studded with minute white tubercles, and less thickly with short whitish hairs. Head green, transparent, marked with black. I found this larva on black currant in September, 1859 ; and this spring, as I expected, it produced E. assimilata.—*Id.*

Description of the Larva of Eupithecia expallidata. — I have great pleasure in giving the readers of the 'Zoologist' descriptions of the different varieties of this most beautiful and hitherto almost unknown larva.

Var. 1. Ground-colour pale canary-yellow. Central dorsal line pale brown. Down the centre of the back a chain of large, deep, rich brown, tooth-shaped spots, united at the points, and bordered on either side by an almost black subdorsal line. Dorsal spots becoming faint and confluent in the central dorsal line on the anterior and posterior segments, almost obliterated on the latter. Below the subdorsal lines a narrow rich brown line and a row of slanting stripes of the same colour. Spiracular line yellowish. Belly suffused on either side with brown, and having a central line of the same colour running the whole length. Body minutely studded with yellow tubercles and very short hairs. Has a wrinkled appearance.

Var. 2. Ground-colour grass or yellowish green. Dorsal spots brown, perfect lozenge-shaped, ceasing on the posterior segments. Subdorsal lines deeper brown than the dorsal spots, interrupted at the segmental divisions. Spiracular line yellowish, bordered on the lower side with brown.

Var. 3. Ground-colour various shades of green. All the markings, except the subdorsal lines, faint or altogether wanting.

Var. 4. Whole body, with the exception of the posterior dorsal segments, suffused with deep rich chocolate-brown. Posterior dorsal segments canary-yellow, with a central pale brown line. On every other dorsal segment two yellow spots. On each side two yellow waved lines, enclosing a brown line.

Feeds in September and throughout October, on the flowers of the golden rod (*Solidago Virgaurea*). In confinement it will eat various species of Michaelmas daisy. It has also, I believe, been beaten from the flowers of ragwort, but I have not myself met with it on anything but Solidago Virgaurea. The pupa, which is enclosed in an earthen cocoon, is large and thick, and has the thorax and abdomen yellow, the latter deeply suffused with blood-red. Wing-cases more or less tinged with green. The perfect insect appears from the middle of June to the end of July.—*Id.*

The Genus Dicranura, or the Kittens. — I have now on my setting-board all the "kittens," and have seen the old "puss," but she is not worth "boarding." There are two male specimens of D. bicuspis, gems just emerged from the pupæ; when I took them they were sitting just over the pupa-cases, on alder. Why do the French ones feed on birch? As far as my observation goes, and according to those of others also, in this country they are exclusively alder-feeders. D. bicuspis is certainly one of the handsomest moths one could wish to see. When at rest the pure creamy white, intermixed with the deep black, at once distinguishes it from D. bifida; and the sprawling, purple and black legs give it a charming appearance. I took D. bifida sitting over the pupa-case upon poplar, and D. furcula on willow, at the same time that I took D. bicuspis. — *J. B. Hodgkinson; Penwortham Mill, near Preston, June* 14, 1860.

Capture of Acronycta Alni at Holme Bush.—At Holme Bush, on the 6th instant, I captured Acronycta Alni, and another on the 12th, both females. The last taken there was five years ago.—*T. Thorncroft;* 87, *North Lane, Brighton, June* 15, 1860.

Reappearance in Profusion of Erastria venustula.—This beautiful little Tortrix-like Noctua has again appeared in Epping Forest. At first, either damaged or retarded by excessive wet, it occurred only sparingly, but the numbers gradually increased until last Sunday, the 24th of June, when they appear to have reached the zenith, one collector alone having taken about one hundred. I hope that those who have been thus successful will not forget that the cabinet of the Entomological Club, which throughout the winter is open to every applicant in quest of correct names, is yet in want of a series sufficient to illustrate the species fairly.—*Edward Newman.*

Occurrence of Ophiodes lunaris at West Wickham. — A magnificent specimen of this previously unique insect was taken at sugar on Whit-Sunday last, by Mr. Smith, a collector living at Walworth, with whom I am not acquainted. It was brought to me to name by Mr. Clements. For the satisfaction of those who may be sceptical as to the authenticity of such a splendid capture, I may state that it was seen by a trustworthy entomologist while still alive. Only one other British specimen has been recorded, and this was said to have been taken in the New Forest by Captain Chawner. It is sometimes represented in cabinets by injured specimens of Toxocampa Pastinum.—*Edward Newman.*

Food-plant of Œcophora tripuncta: Correction of an Error.—In the 'Zoologist' for June (Zool. 7060) Mr. Parfitt announced that he had bred Œcophora tripuncta from pupæ received from Mr. D'Orville, who had found the larvæ feeding on dried mint. Immediately I perused this communication I wrote to Mr. D'Orville for some further particulars, for though Œ. minutella is common in out-houses and its larva is known to feed on dry seeds, the food and habitat here assigned to Œ. tripuncta appeared to me singular, that insect flying freely along hedges, and its proper food being, in all probability, decayed wood. Mr. D'Orville at once cleared up the mystery by assuring me the insects he had bred were Œ. minutella (oppositella, *Wood*, fig. 1575) and not Œ. tripuncta and, quoted the following entry from his journal. "February, 1857. Found, in a bundle of dried mint, hundreds of small bluish-white larvæ with light brown head; the leaves nearly all eaten. June 4th and 5th. Emerged a Micro with blackish wings, having two gold spots on each wing." Mr. D'Orville adds in his letter "The larvæ fed upon the dried leaves, and I had to keep them supplied with that food until they went into pupa. I have captured Œ. tripuncta, and have three or four specimens, whereas of the insect I bred I have many in my store box. I have written to Mr. Parfitt on the subject, and enclose his letter to me just received." Mr. Parfitt's letter unfortunately again covers the whole subject with a veil of the deepest mystery. He has bred specimens of Œ. tripuncta, but no bred specimens of Œ. minutella, and the record in his journal respecting the Œ. tripuncta states they "were bred from larvæ feeding on a bunch of dried mint; from Mr. D'Orville, Alphington." Mr. Parfitt sketches a wing of each species to show there is no transposition, and remarks that the fineness of his specimens of Œ. tripuncta is a convincing proof that they were bred. Mr. Parfitt observes, "Where the mistake is or how it can have arisen I am sure I cannot conceive, as at that time I was studying the Micros particularly, and was very careful in keeping them in separate jam pots." Strange things do sometimes happen, as for instance when I bred one Elachista Chrysodesmella from among a number of larvæ collected near Zurich, which were supposed all to be E. tetragonella, E. Chrysodesmella not being then known to occur in Switzerland! And again, Herr Mühlig, of Frankfort, has bred a single specimen of Gelechia Hübneri from amongst a number of larvæ of G. fraternella which I had sent to him from here, G. Hübneri being a species I have never taken, and the larva of it not having hitherto been observed! But to imagine that out of a number of larvæ being found by Mr. D'Orville, some of which he handed to Mr. Parfitt, the larvæ retained by Mr. D'Orville should all produce Œ. minutella and no other species, whilst those he gave to Mr. Parfitt should produce Œ. tripuncta and no other species, is far beyond the limits of probability. No doubt by some accident the pupæ were changed, though how? it is impossible to say.—*H. T. Stainton; Mountsfield, Lewisham, June* 9, 1860.

Occurrence of Badister peltatus and Anchomenus livens in Lincolnshire.—I spent a couple of days this spring in the neighbourhood of Boston, Lincolnshire, with my old and valued correspondent Mr. Rye, hunting for Badister peltatus, which I had found there the two preceding years. On his leaving me I was joined by my friend the Rev. W. Hey, of York, and with him I spent another day in search of B. peltatus. We were rather too early to find many insects out (it being the 11th of April in a backward season), but by cutting down the banks in thin layers, and shaking tussocks of grass over an oil-cloth, we took about sixty B. peltatus between us, besides such insects as Stenolophus Skrimshiranus, Bembidium fumigatum, Stenus latifrons, S. paganus, and Cryptobium fracticorne. The next day we visited Cowbit Wash, near Spalding, almost the only undrained fen in Lincolnshire. It is a singular country, and, to any one who has never seen a fen, must have a very striking appearance. It is a wide expanse of water, diversified here and there by green fields and osier-beds, bounded only by the horizon, excepting where the Roman banks, so conspicuous in this part of England, intervene. Even in this dreary region we found inhabitants, one of whom punted us across the water, in a boat about the size of a coffin, to the neighbourhood of an osier-bed. Had our time been longer and the season a little more advanced, we might perhaps have taken Clænius holosericeus, Dromius longiceps, Trechus incilis, and other things at present only dreamed of, for everything had a very promising appearance. From an osier-bed, in old pieces of turf, and by cutting down rotten stumps, we obtained Anchomenus liveus (4), of which I took a pair a few miles from Cowbit, in September, 1858, A. piceus, A. micans, Pterostichus gracilis, Badister unipustulatus, Stenolophus Skrimshiranus, S. vespertinus, S. consputus (20), S. luridus, Bembidium æneum (abundant), and, rather strangely, Bledius tricornis many miles from salt water. A friend of mine in this neighbourhood, Mr. H. Milnes, has lately been so fortunate as to take a specimen of the very rare Amara rufocincta on the high ground above Cromford, which he very kindly presented me. Of the same insect I took a pair in Ayton quarries, near Scarborough, in July, 1858.—*Walter K. Bissill; Cromford, Derbyshire, June* 12, 1860.

Occurrence of Laccophilus variegatus in the South of England.— I am indebted to the Rev. Hamlet Clark for beautiful specimens of Laccophilus variegatus, a small hydradephagous beetle, entirely new to this country, but tolerably common over the whole of France. Fairmaire's very accurate description, which I transcribe, will enable any one to recognise the species:—"Form elongate-oval, narrowed posteriorly, rounded and depressed. Colour testaceous-red, the crown of the head, the base of the prothorax and the middle of its anterior margin blackish: elytra covered with irregular and almost confluent black spots, giving them a brownish tint, with the external margin and two spots on each elytron of the red-brown ground-colour; the first of these spots is semicircular, transverse, and situated a little beyond the base; the second is also transverse, irregular, and situated a little behind the first, and beyond the middle of the elytron: the reflexed portion of the elytra is testaceous, inclining to red."—*Edward Newman.*

Telephorus rusticus.— Is it generally known that this insect is carnivorous? If not, it may interest Coleopterists to hear that when Telephorus lividus cannot indulge himself in probing the nectaries of the May or other flowers he can condescend to more substantial, though less ethereal diet. I spent some time this morning in watching the operations of a T. rusticus, who had found himself imprisoned on my window, and observed him feeding on the abdomen of a large fly, which had been captured by a spider, whose den was not far off, a couple of days before, and was already pretty well sucked. The Telephorus was evidently hungry, for, on finding that the spider had left but little picking on the fly, he turned on his back, and, enfolding the abdominal section with his legs, proceeded to mandibulate (if such a word may be allowed) every crevice where moisture might possibly lurk with the utmost care. No elderly gentleman could more diligently turn and refold, and turn again his newspaper to secure every particle of news, before resigning it to some restless youngster, than did the Telephorus twist round and round his evidently much-valued prey to see if anything further could be extracted from its well-stripped segments, till at length, being convinced there was not a morsel more to be had, he suddenly flung it aside, and sprang once more upon his feet. The occurrence may not be as uncommon as I take it to be, but still it seems a pity not to notice it.—*A. R. Hogan; Pitton, near Salisbury, June* 9, 1860.

Note on Hydroptila pulchricornis and H. tineoides.—Yesterday being the finest we have had for some time I took advantage of it to hunt up the Phryganidæ, and on a wall near the river Tone were immense numbers of Hydroptila pulchricornis and H. tineoides running about with the swiftness of racers. I took out my pocket lens to examine them more closely, and indeed to be sure which species they were. I have been in doubt for some time as to whether these so-called species were really such, or only the sex of one species which now prove to be, for I had the good fortune to take a pair *in cop.* Dr. Hagen says, speaking of H. tineoides, perhaps only the female of the preceding species, meaning H. pulchricornis: but it is the reverse of this; H. pulchricornis is the female, and H. tineoides the male; his then settles this question. While busy looking at these Hydroptilas with my glass the sun was shining brightly on the wall, and in the chink of a stone were two large Epeiras; I do not know which species, as I am not versed in Arachnology. I had the curiosity of trying the burning power of a lens on a cold-blooded animal, so I just got the glass into focus upon the abdomen of the poor unfortunate spider. The moment the focal power was brought to bear the creature gave a start, precisely as if electrified. This I repeated two or three times; I did not keep the glass in focus so as to kill or injure the spider, only to try the effect. On the second application of the lens it was curious to see the action of the creature, for it put back its hind legs, and distinctly rubbed the part; it shows a degree of intelligence in directing its legs to the injured part, and we ourselves could do no more. I was much interested to see the effect of a burning point upon the nervous system of this cold blooded creature. The effect produced was equally as rapid or quick from the moment of contact as that on one of warm blood.—*Edward Parfitt; Museum, Taunton, June* 16, 1860.

Situation of Pyrgoma anglicum. — There is a slight variation in the position of this barnacle on different specimens of our British Caryophyllaceæ, but, so far as I have seen, it has always been upon, or just below, the outer margin of the calyx of the coral. I have now before me five large living specimens of Pyrgoma, which apparently spring from the level of the base of the supporting corals, but in each case the coral is very low, and a close examination shows that the barnacle is attached in its usual position close to the margin of the calyx, although at first sight it appears like a stout buttress springing from the rock, and extending some way above the corallum. Is not this the case with Mr. Guyon's specimens? There are several foreign species of Pyrgoma which affect different parts of the corals to which they adhere, but I think our single British species is pretty constant in its position at the lip of the coral. I may mention that I have seen fourteen specimens of this barnacle attached to a single example of Caryophyllia Smithii that was dredged in Plymouth Sound, by Mr. T. H. Stewart.—*E. W. H. Holdsworth ; 26, Osnaburgh Street.*

BOTANIST'S CORNER.

British Cyclamen.—I can partially assist Mr. Clark (Zool. 6952) in his desire to determine the species of the British Cyclamen, being myself a native of Sandhurst, the Kentish locality in which the plant is found, and having for a long period taken a great interest in it. The Sandhurst Cyclamen blossoms in September, though occasionally a few flowers may come forth in August; others of whom I have inquired confirm my own persuasion, that it has never been known in bloom at any other season. The original and only spot in Sandhurst where Cyclamens were found is (or was) a narrow strip of coppice upon a farm on the northern side of the parish, which farm was once the residence of one of the small country gentlemen formerly so numerous, but the Cyclamen wood is too far from the house to render it very probable that the plant had by some accident found its way thither from the garden. Both the white and the pink varieties grew there, and that they throve is most certain. I am not aware that any restriction was placed upon persons supplying themselves at pleasure, and the existence of the plant in that locality was very generally known. I remember to have heard, and can quite believe it to be true, that a small nursery-gardener, long in business at Sandhurst, had during his time forwarded bushels of Cyclamen roots to one of the large gardeners in the neighbourhood of London. At the Rectory we possessed the plant in great abundance, and, when in full blossom, a a bed of the two colours intermingled presented a splendid appearance. That the Cyclamens are very prolific we had plentiful evidence, and that if the ground around the beds had been left in a state of nature it would have been covered with them. That they are likewise very hardy I can testify, having myself tried them, and known them to have been tried by others, in a great variety of soils where they have always increased rapidly, when properly managed, the grand secret being to leave them perfectly undisturbed, without permitting a tool of any kind to be used in the spot devoted to them. I have no doubt that long before this time many persons, perhaps some strangers as well as natives, have been puzzled by finding Cyclamens in many places in and around Sandhurst beside that where they were originally discovered. The fact is that lest they should be extirpated from their native (?) settlement pains were taken, partly by myself, to propagate them both by plants and seeds elsewhere, and I have often, when walking or riding, carried a supply of seed-pods, which I have scattered in the woods I passed through or by. I regret that this notice will be so long before it can possibly reach Mr. Clark's eye, but I was quite unequal to preparing it at the time I wished to have done so.—*Arthur Hussey ; Rottingdean, June* 16, 1860.

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